IT hiring outlook still bleak, study says. PAGE 7

Turning negative feedback into a positive experience. PAGE 46

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SEPTEMBER 23, 2002 ▪ VOL. 36 ▪ NO. 39 ▪ $5/COPY

VENDORS MAKE A WIRELESS END RUN

Immediate need for better wireless LAN security compels group to bypass IEEE

BY BOB BREWIN

Microsoft Corp., Cisco Systems Inc. and major wireless LAN hardware manufacturers have joined forces to beef up security for 802.11b wireless LAN products through a project dubbed Safe Secure Networks, *Computerworld* has learned. An announcement is slated for next month.

The SSN project grew out of a multivendor initiative kicked off earlier this year to address known weaknesses in the Wired Equivalent Privacy protocol, said Warren Barkley, lead program manager for wireless in Microsoft's Windows division. Building security beyond WEP into wireless LAN products would help users guard against hacker intrusions.

The SSN partners include semiconductor manufacturer Intersil Corp. and enterprise wireless LAN hardware makers Agere Systems Inc., Symbol Technologies Inc. and Proxim Corp. Barkley said the group plans to adopt a technology called Temporal Key Integrity Protocol ahead of its final approval by the Institute of Electrical and Electronics Engineers Inc.'s 802.i standards body. He added that the SSN partners have worked to ensure that the TKIP fix is compatible with the existing installed 802.11b, or Wi-Fi, hardware base. That's a key issue for businesses as well as home users, who have installed millions of wireless LAN access points and cards.

TKIP defeats hacking by providing users with dynamic

Wireless LANs, page 16

Wi-Fi Weaknesses

For access to all *Computerworld* stories on wireless LAN security issues, visit our Mobile/Wireless Knowledge Center:

QuickLink k1000
www.computerworld.com

DEVELOPERS RE-EXAMINE RICH-CLIENT APPS

Coders begin to catch on to features in .Net

BY CAROL SLIWA
ORLANDO

Some corporate developers last week said they will consider switching from Web applications back to their old, familiar rich-client applications because of unpromoted features that they're just now discovering in Microsoft Corp.'s .Net framework.

Many developers had shifted to Web browser-based clients because that soothed the headaches they had encountered when developing, distributing, deploying and maintaining rich-client applications. The trade-off was that they lost the highly graphical user interfaces and, in some cases, intensive data entry and calculation capabilities that many users had grown to expect.

"Sometimes we had to tell the client that what they wanted was unrealistic for the Web platform," said Marc Ginns, an application analyst at Duke Energy Corp. in Charlotte, N.C.

Ginns said his firm's new development focused largely on Web applications, following Microsoft's lead. But he said his group will re-evaluate its Web thrust, based on new features in the .Net framework such as the Windows Forms set of class libraries and design

Rich-Client Apps, page 57

The .Net Framework

What it is: Microsoft's programming model for developing, deploying and running applications and XML Web services.

How users get it: In Service Pack 1 for Windows XP, Windows update. The framework can also be distributed with an application that uses it.

What operating systems it will run on: Windows 98, NT 4.0, Me, 2000 and XP.

Top-flight TECHNOLOGY

INNOVATIVE TECHNOLOGY 2002 AWARDS

Whether they're getting connected with trading partners faster, slicing billing cycles or fending off computer viruses, IT managers are strengthening their businesses with help from their technology providers. For *Computerworld*'s first annual Innovative Technology Awards, satisfied IT customers helped us choose the top 10 vendors that are helping them achieve business payback. Some highlights of our special report:

GIORGIO PALMISANO

MTV Networks' Brian Amirian

- **Content management software helps mechanics at US Airways find repair information faster.**
- **A device filter fights back hacker attacks for MTV.com during its fall video awards.**
- **Optical technology enables a Seattle hotel to meet the variable bandwidth demands of its high-tech guests.**

REPORT BEGINS ON PAGE 26.

CYBERDEFENSE PLAN GETS MIXED REVIEWS

Raises awareness, but critics say it lacks teeth

BY DAN VERTON

The White House's National Strategy to Secure Cyberspace, released last week in draft form, was applauded by some IT industry executives for its vision. But the ink was barely dry before critics charged that the plan lacks the authority necessary to accomplish real change.

"Anything that could have made a difference was removed at the last minute," said the president of a major security consulting firm who requested anonymity.

While the government got high marks for its effort to raise awareness of security issues and its willingness to take on a leadership role, some private-sector security experts were surprised by the lack of tough enforcement language in the document. In fact, a White House source acknowledged that major changes, such as the removal of "politically sensitive language," were made to the plan in the last 24 hours of preparation.

Cyberdefense, page 57

NEWSPAPER

When .NET connected software helps you quickly connect islands of data into one clear picture for your employees, that's one degree of separation. All too often, data critical to internal decision-making is scattered throughout your enterprise, and you need to collect and present it in a way that makes sense—quickly. Microsoft® SQL Server™ 2000 Enterprise Edition with Analysis Services unifies and analyzes data from various systems using Data Mining and Data Transformation Services. Analytics built into Data Analyzer make information available immediately to the employees who require it, in a way that makes decision-making easier and more effective. And that's important, because when vital decisions are put off, so are profits. That's one degree of separation. That's business intelligence with .NET. Find out how .NET connected software can help you see the big picture. Go to **microsoft.com/enterprise** Software for the Agile Business.

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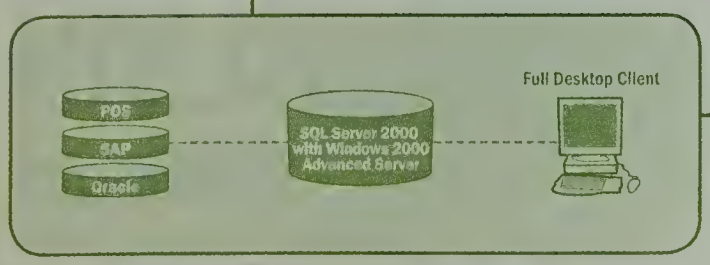

Microsoft

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JAMES SCHNEPF

WORTH MAKING THE MOVE?

Faster speeds and lower support costs — not the zero purchase price — make Linux worth deploying, says Ed Wojciechowski (left) at packaging company Menasha Corp. **PAGE 42**

FRANKLIN HAMMOND

SINGING FOR THEMSELVES

Treating prima donnas like other employees may be a mistake. Read about how to tone down their behavior to enhance staff harmony and productivity. **PAGE 46**

SEPTEMBER 23, 2002

COMPUTERWORLD THIS WEEK

NEWS 6

6 Slumping Sun attempts to jump-start sales with new management software and desktop initiatives.

7 IBM is convinced that now is the right time to raise the price of its DB2 enterprise edition.

10 EDS renews negotiations for an outsourcing deal with Proctor & Gamble that could be worth $10 billion.

12 The nanotechnology race is heating up as the U.S. faces competition from Europe and Asia.

14 More sophisticated ROI metrics are being used by a growing number of IT leaders.

19 IBM and Intel team up to develop a high-density blade server.

BREAKING NEWS

For breaking news, updated twice daily, visit:
QuickLink a1510
www.computerworld.com

TECHNOLOGY 25

25 The emerging Object-Based Storage Device Commands specification is the first step toward SAN/NAS convergence, writes *Computerworld*'s Robert L. Mitchell.

26 Innovative Technology Awards 2002: *Computerworld* presents the 10 winners of this first annual awards program. The winning vendors, which were nominated by IT customers, offer leading-edge products and services that provide measurable payback on investment. Also: brief profiles of the 10 companies that earned honorable mentions.

38 Security Journal: When someone — or something — begins generating port scans of Defense Intelligence Agency computers from inside the corporate firewall, Vince Tuesday trades a good night's sleep for a midnight stint tracking down the culprit.

MANAGEMENT 41

41 Guest CIO columnist Eric Goldfarb says traditional employment benefits associated with seniority and loyalty are dead. The future belongs to IT workers who upgrade their skills, stay flexible and deliver more value than it costs their companies to keep them on the payroll.

48 It's never easy to deliver bad news or corrective feedback — especially in IT. But with a little planning and practice, managers can hone their skills at offering criticism that helps employees.

50 Workstyles: Since separating from Hoechst, chemical manufacturer Celanese has been working to centralize its global IT and keep its culture lively and informal.

50 Career Adviser: Fran Quittel counsels a systems engineer in the telecommunications industry on where to look for better opportunities, and a veteran Unix systems administrator on bolstering his skills.

OPINIONS 22

22 Maryfran Johnson says that no matter how tight your budget is, the right technology with the right ROI can be just around the corner. But finding the best product means sifting through a lot of hype.

22 Pimm Fox discovers that a savvy desktop management strategy helped one company cut costs and eliminate a potential software-license compliance problem.

23 Dan Gillmor knows why trade shows have lost their luster for many IT managers. But he still finds good reasons why you should consider attending.

58 Frank Hayes says readers are right: Cobol isn't dead, after all. But will it ever be king of IT again? For companies seeking a competitive advantage, it just might.

Editorial/Letters 22, 23
How to Contact CW 56
Company Index 56
Shark Tank 58

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SECURITY PLAN

What do you think of the Bush administration's new cybersecurity plan? After reading the story on Page One, post your opinions in our discussion forum and read what others have to say.
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AT DEADLINE

HP, BEA to Detail App Server Deal

Hewlett-Packard Co. today plans to announce that it will bundle a trial version of BEA Systems Inc.'s WebLogic application server software with all of its servers, starting with those running HP-UX. HP said in July that it was dropping its own Java-based Netaction software in favor of a joint sales deal with BEA [QuickLink 31481]. In return, San Jose-based BEA will promote HP's OpenView management tools.

Feds Extend Net Contract With ICANN

The U.S. Department of Commerce has decided to extend for another year the agreement under which the Internet Corporation for Assigned Names and Numbers (ICANN) manages the Domain Name System. But the agency said that it wants Marina Del Rey, Calif.-based ICANN to speed up a review of the Internet root server system's security, among other things.

Ellison Steps Down From Apple's Board

Apple Computer Inc. announced that Oracle Corp. CEO Larry Ellison is resigning from its board of directors. Ellison said in a statement that his schedule doesn't allow him "to attend enough of the formal board meetings to warrant a role as a director." He has been a member of Apple's board since 1997.

Short Takes

Blue Bell, Pa.-based UNISYS CORP. this week plans to expand its ClearPath server line by adding a model with new workload and performance management tools. . . . CISCO SYSTEMS INC. released patches to plug a pair of security holes in the Linux, Solaris and Macintosh versions of its VPN 5000 Client software, which offers virtual private networking capabilities.

Eclipsed Sun Tries to Brighten Horizon With New Initiatives

Moves seen as challenges to HP, Microsoft, IBM

BY JAIKUMAR VIJAYAN
SAN FRANCISCO

SUN MICROSYSTEMS Inc. is hoping to regain some of its lost momentum with major new initiatives aimed at giving corporations better control of their data center assets and an alternative to Microsoft Corp. technologies on the desktop.

At the SunNetwork 2002 user conference here last week, Sun executives announced an enterprise desktop initiative code-named Mad Hatter, under which the company will deliver preconfigured desktop bundles running Linux with Sun's StarOffice and other open-source office productivity software.

Sun fleshed out details of another long-term initiative, called N1, under which it will develop management software that it says will help users administer and use their data center computing resources far more cost-effectively.

The company also outlined a new delivery strategy for its high-end systems under which it will increasingly let companies order systems that are configured to their specific requirements. Sun will deliver such preconfigured bundles using integration and consulting services from its iForce channel partners and systems integrators.

The aim of efforts such as those is to reduce complexity and the cost of technology acquisition and ownership, CEO Scott McNealy said in his keynote address.

"The No. 1 issue on customer minds is cost. Our biggest competitor is the chief financial officer," McNealy said.

Sun's strategy makes competitive sense, said Jean Bozman, an analyst at IDC in Framingham, Mass. "Sun is smaller than IBM and Hewlett-Packard, yet they have to compete with them in every way," Bozman said.

What Sun is attempting to do is give users a technology portfolio that ranges from the desktop to high-end servers and offers an alternative to Microsoft, analysts said.

With Sun's desktop stack, for instance, users get office productivity, browser, mail and Web server software that interoperates completely with Microsoft's offerings at a per-user cost that's less than $50 per month, compared with more than $150 for Microsoft software, according to Jonathan Schwartz, Sun's vice president of software.

Despite the obvious appeal, Sun is still "fighting an uphill battle," said Phil Black, manager of infrastructure services at Petro-Canada in Calgary, Alberta. Although Sun's desktop stack might make sense in relatively small environments, large users will find it a major challenge to introduce and integrate it into existing Microsoft environments, he said.

Microsoft No Pushover

"StarOffice is a great alternative to Microsoft Office. But it still remains to be seen if Sun's innovation can overcome Microsoft's market presence and inertia," said analyst Michael Dortch at Robert Frances Group Inc. in San Francisco.

Meanwhile, Solaris will continue to be Sun's standard-bearer on the high end, Schwartz said. And going forward, the company will increasingly bundle more of its now-separate Sun Open Net Environment software stack into Solaris, he added.

SunNetwork — Sun's first user show in 10 years — comes at a tough time for the company. Though it's still the Unix market leader and had revenue of more than $3.5 billion in the last quarter, Sun has failed to make a profit in three of its past four quarters. Its stock — which traded at above $60 about 18 months ago — is now languishing at less than $3.

Sun's exposure to the economic slowdown has been especially severe because of its dependency on the telecommunications and financial services markets, said Mark Tolliver, Sun's chief strategy officer. The meltdown of those two sectors — both of which played a major role in Sun's extraordinary growth of the past few years — has hurt the company, Tolliver said. As a result, expect to see Sun make more of an effort in areas such as health care, biotechnology and energy, he said. ◗

A New Dawn

The following were among the products and initiatives announced at SunNetwork:

- Linux-based **Open Enterprise Client** software and hardware
- **A security service** called Perimeter Defense and Secure Web Server
- The N1 initiative for helping companies better **manage data center** computing resources

Gambling on the Linux Desktop

Sun Microsystems faces an uphill challenge in trying to push its Linux-based desktop office productivity offering against Microsoft's long-established client software, analysts said last week.

But it might find an audience in certain vertical market segments and among corporate users who are looking for an alternative to Microsoft in the wake of that company's unpopular new subscription-pricing scheme, they added.

Sun last week introduced a bundled desktop offering featuring vanilla Intel Corp. hardware, Linux, Sun's StarOffice productivity suite and open-source software such as the Mozilla Web browser, Evolution e-mail client and the GNU Object Model Environment interface. The client desktop hardware, which Sun will sell in one standard configuration only, will also include support for Java card technology for authenticating user access to applications.

Sun will sell the technology in 100-unit bundles that will also include a server for identity management and portal and messaging capabilities. Sun didn't disclose pricing for its configuration, which it hopes to start shipping sometime in the first half of next year.

But users can expect to see substantial savings in acquisition costs and total costs of ownership, said Jonathan Schwartz, Sun's vice president in charge of software.

The increased availability and acceptance of Linux and of open-source software makes such an offering attractive to some companies, said Mark Tolliver, Sun's chief strategy officer.

Sun's desktop offerings hold a lot of promise in areas where cost and security are an issue, such as call centers and educational institutions, he said.

The resentment generated by Microsoft's Software Assurance program might also make Sun's pitch appealing for some users, said Michael Dortch, an analyst at Robert Frances Group, particularly considering that Sun already has a presence in many companies.

– Jaikumar Vijayan

STILL HAZY

Sun's N1 vision is expected to materialize slowly:

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Demand for U.S. IT Workers Remains Soft, Survey Shows

ITAA/Dice report says hiring rebound still on hold; some blame offshore outsourcing

BY THOMAS HOFFMAN

Although the U.S. IT workforce has grown by 1% since the beginning of the year, the short-term hiring outlook remains bleak, according to an updated report being released today by the Information Technology Association of America (ITAA) and Dice Inc.

Telephone interviews conducted in July and August with hiring managers at 84 IT vendor companies and 216 non-IT companies revealed that "the original optimistic hiring forecast at the beginning of the year has been tempered by the economy," said Scot Melland, president and CEO of Dice, a New York-based provider of online recruiting services for technology professionals.

Many unemployed IT workers are shifting the blame elsewhere. *Computerworld* regularly receives letters from disgruntled IT professionals who claim that they have in-demand skills such as C++, Java and Oracle training and yet haven't been able to find work for months. Many of them point the finger at H-1B visa holders and offshore programming outfits, where a growing number of companies are shifting their development and maintenance work to reduce costs.

Influence From Overseas

The U.S. General Accounting Office is about to embark on a study of the impact of the H-1B visa program on U.S. jobs [QuickLink 32835]. The results of that study are due next year.

But some IT professionals say offshore outsourcing is having a more significant and longer-term impact on U.S. IT workers.

Outsourcing not only leads to job cuts; it also allows corporations to avoid paying unemployment taxes when demand for labor slackens, said Norman A. Lane, president of Aztech Professional Services Inc., a Phoenix-based consulting and contracting firm. Lane contends that to prevent tax losses to the federal government, U.S. companies that engage in offshore outsourcing should pay a levy "on every outsourced job to compensate U.S. taxpayers."

ITAA President Harris Miller has been a lightning rod for H-1B critics, since the Arlington, Va.-based trade association is largely made up of technology vendors such as IBM, Cisco Systems Inc. and others who have made extensive use of foreign IT specialists. While he said he believes the economy has been the biggest culprit, even he acknowledges that offshore programming "is having an impact" on the U.S. IT job market.

"The real challenge is offshore programming — not the few thousand [IT workers] that come to the U.S., but the workers in Ireland and South Africa and India that are paid much less to do the work," said Miller. "I think there is more work going offshore in part due to the pressure to keep costs down, and there's huge downward pressure on software vendors to keep their labor rates down," he added.

"So much work is going offshore, we're putting ourselves at a substantial [intellectual capital and security] risk," said Linda McInnis, an independent contractor and head of the hiring initiative at BostonSPIN, an Acton, Mass.-based group of 1,200 Boston-area software professionals.

Labor Daze

Key findings from the ITAA/Dice updated IT workforce study:

- The U.S. IT workforce has grown by a net **85,437 positions since January,** from 9,895,916 jobs to 9,981,353.
- Employers **added 782,466 IT workers** and **dismissed 697,029 IT employees** during the period.
- The number of IT worker layoffs has dropped substantially in the past 12 months. **Between January and December 2001, companies released 2.6 million IT workers,** more than 218,000 per month. Between July 2001 and June 2002, the monthly total dropped to 116,000.
- Companies have hired far fewer IT workers in the past 12 months. **Between January and December 2001, companies hired 2,090,492 IT workers,** compared with 1,564,931 workers between July 2001 and June 2002. Hiring dipped 25% during this tracking period.
- Top in-demand skills haven't changed much since earlier this year. **C++, Oracle, SQL and Java remain at the top of the list,** and demand for these skills has held steady or increased slightly.
- If current hiring trends hold, the total **U.S. IT workforce** will reach just over 10 million workers by the end of the year, **10% below expectations earlier in 2002.**

Base: Telephone interviews with hiring managers at 300 companies, July and August 2002
SOURCE: THE ITAA/DICE ANNUAL WORKFORCE STUDY "BOUNCING BACK"

IBM Sets Price Increases on Enterprise Version of DB2

Says new features justify database's cost

BY MARC L. SONGINI

IBM is adding a variety of features to the next version of its flagship DB2 relational database, which is due for release in November. But it's also adding to the price of the software's enterprise edition.

IBM officials last week disclosed that Version 8 of DB2 Universal Database will ship on Nov. 21 for Unix, Linux and Windows systems. As part of the rollout, they said, IBM plans to consolidate its DB2 Enterprise Edition and DB2 Extended Enterprise Edition packages into one offering priced at $25,000 per CPU — $5,000 more than what the company now charges for the base version of the software.

In addition, database clustering support will now be sold as an add-on feature costing $7,500 per CPU. Clustering is currently included in the extended version of the enterprise edition, which costs $25,000.

But IBM isn't just raising prices: The per-CPU cost for the workgroup version of DB2 will be cut from $14,000 to $7,500, the company said. And IBM officials pointed to the new functionality that's coming in Version 8, in an attempt to justify the price increases at the enterprise level.

"There's a little bump in price for the enterprise version, but we added 432 new features to this release," said Jeff Jones, director of strategy at IBM's data management solutions unit. "This is a major, major upgrade for us."

DB2 Version 8, which was announced two months ago without pricing details, includes new self-managing tools, a redesigned user interface, a built-in configuration adviser and other enhancements [QuickLink 31614].

Despite the price increases, an IBM spokeswoman said DB2 will still cost users less than the $40,000 per CPU that rival Oracle Corp. charges for the enterprise version of its Oracle9i database.

But Jacqueline Woods, vice president of global pricing and licensing strategy at Oracle, said via e-mail that DB2 still falls short of Oracle9i on functionality. "As such, no one should expect the price to be the same," she said.

Oracle last week reported that database revenue fell 9% year to year in its first quarter ended Aug. 31. But IBM claimed that it has had 21 consecutive quarters of database revenue growth as of this year's second quarter.

David Beulke, president-elect of the Chicago-based International DB2 Users Group, said he doesn't mind the price increase, given the new features IBM is promising. "The total cost of ownership for DB2 continues to be cheaper than competing platforms," said Beulke, a consultant and developer at Pragmatic Solutions Inc. in Alexandria, Va.

"I expect they need to pay for development, and the features are worth it," said Martin Hubel, a database consultant in Toronto who uses DB2 Version 7.2 to run a Web site and plans to upgrade to Version 8 as soon as the software is available.

But Mike Schiff, an analyst at Current Analysis Inc. in Sterling, Va., said some users may choke on any price increase in the current IT spending environment. "I can see Larry Ellison having a field day," Schiff said, referring to Oracle's CEO. Nevertheless, he added that price often "is a relatively small consideration" in database purchases.

ORACLE Q1 SLIDE

The software vendor reports another year-to-year drop-off in revenue and profits:

QuickLink 33092
www.computerworld.com

James Niccolai of the IDG News Service contributed to this report.

BRIEFS

J.D. Edwards, IBM Ink Integration Deal

Denver-based J.D. Edwards & Co. said it plans to integrate IBM's DB2 database, WebSphere Application Server and other middleware products into its business applications. The integration work is due to be completed by year's end. J.D. Edwards said the price of its applications will increase, but it added that users will get more functionality and should be able to reduce their software integration costs.

Cisco Ends Reseller Agreement With Dell

Cisco Systems Inc. confirmed that it plans to drop Dell Computer Corp. as a reseller of its networking products as of Friday. Cisco declined to comment on its reasons, but Dell is now selling its own line of network switches that compete with products such as Cisco's. Dell said it will be able to continue supplying Cisco gear until Oct. 31 to users that are deemed critical.

Flaws Discovered in Microsoft's Java Code

Microsoft Corp. warned of three software flaws in its virtual machine code for running Java applications on Windows-based PCs. The most serious flaw could be used by attackers to gain complete control of vulnerable systems, said Microsoft, which gave the problem its maximum severity rating. The company urged users to install a patch designed to plug the holes.

Short Takes

WORLDCOM INC. said it will cut about 2,000 of the 8,300 workers at its European unit and limit new network infrastructure investments in the region. . . . SUN MICROSYSTEMS INC. said it plans to buy Pirus Networks Inc., an Acton, Mass.-based developer of storage networking software.

MARK HALL ▪ ON THE MARK

Vendors Target IT Job Elimination . . .

. . . with a slew of new systems management products that, in one way or another, automate many formerly employee-dependent administrative tasks. As Rick Lane, COO at Heroix Corp. in Newton, Mass., observes, "In tough times like these, you can't hire IT talent; in good times, people are too expensive." So the company thinks now is the right time to ship **eQ 1.5, the latest upgrade** to its systems management software. Those who get to keep their jobs, however, will be treated to 18 new agents to monitor Microsoft Corp.'s Active Directory in this week's software release. Lane is betting AD does better in the market on .Net servers than it has so far on Windows 2000, what with its **dubious security and replication reputation**. But just in case, eQ 1.5 will also enhance its management of NetWare and WebLogic, and even OpenVMS, which astoundingly enough is still a growth market for Heroix, according to Lane. ▪ Help desk careers will become a little less secure as well, with this week's release of AppSight Web Support 4.0, a $25,000 add-on module to Raleigh, N.C.-based **Identify Software Ltd.**'s management suite. The new product, which, fortunately for users, the company has given the same numbering sequence as the suite, handles remote users' problems with any application on their desktop systems. Users with troubles simply log onto a Web page and click a few buttons, and a diagnostic "black box" follows the user through the problem and automatically reports back to the appropriate level of support. Notice: No tech support necessary. ▪ Unemployed IT pros can take some satisfaction that **managed service providers (MSP) are in retreat.** According to Mary Nugent, a VP and general manager in BMC Software Inc.'s subscription server business unit, "The MSP Association's ranks have dwindled." What's more, she says, "I think there's less than 10 that will survive." Why? Two things, Nugent says. MSPs catered to the dot-com silliness, which sealed many of their ill fortunes. Second, the survivors' fallback was serving small and medium-size businesses (SMB). **Wrong move, Nugent says.** SMBs have little experience with outsourcers, and that's not changing. Large organizations, though, "get it" and are embracing selective MSPs. BMC's own MSP offering, Guardian Angel, is also being licensed to users as part of the vendor's famous Patrol line of management products, giving companies an opportunity to eliminate jobs through the subscription or licensing approach. ▪ One area of automation that is possible but so far is being only partly accomplished is **server change management,** says Kia Behnia, chief technology officer at Marimba Inc. in Mountain View, Calif. "Customers don't feel comfortable with a fully automated mechanism," he says. Instead, they upgrade a staging or test server first to ensure that operating system patches, for example, won't cause applications to stumble. Users of Marimba's Server Change Management offering, now in its 2.1 release, will get Citrix support in the next iteration. Behnia also says the next release will include integration with systems management tools from Mercury Interactive Corp. and BMC. Another nifty plus will be the ability to roll back changes of any server application to its prior state, just in case a problem crops up. Of course, since everyone is using staging servers, that may not be a big deal. When will users be ready to fully automate change management? Not for two to five years, Behnia predicts. ◗

Shipping Now

OpenHarbor Inc. this week releases Open Harbor 4.0, customs clearance software for the global supply chain.

Two million downloads and counting: That's the news from Eclipse.org, the open-source development framework challenging Microsoft's Visual Studio .Net.

▪ In last week's On the Mark column, a senior product manager at Rational Software Corp. was misidentified. The correct name is Jeffrey Hammond.

Air2Web Readies Upgrades To Wireless Applications

Software links users to corporate data

BY MATT HAMBLEN

Air2Web Inc. today is due to announce an upgrade of its mobile Internet middleware that's designed to let end users access corporate data via wireless connections and a variety of handheld devices.

Client applications are supported for handhelds that run operating systems from Palm Inc. and Research In Motion Ltd., as well as Sun Microsystems Inc.'s Java 2 Micro Edition, Air2Web said. Support for devices based on Microsoft Corp.'s Pocket PC operating system is also coming, but Atlanta-based Air2Web wouldn't say when it will be available.

The middleware release lets handheld users pull data from corporate servers and then do their work regardless of whether they're connected to a network. For example, Air2Web said, a utility worker could download a trouble ticket and then disconnect from the network to fill out the form.

Roberta Wiggins, an analyst at The Yankee Group in Boston, said Air2Web's biggest competitors in mobile data synchronization are Synchrologic Inc. in Alpharetta, Ga., and Pumatech Inc. in San Jose. But Air2Web's new software appears to provide a more efficient way to download data than most rival products, she added.

Air2Web also plans to unveil an upgrade of its 2Mail wireless e-mail and alert service, with new content encryption, validation and signature capabilities that are aimed at enhancing the security of messages sent to handheld devices.

One of the pilot users of the new service is Vigilar Inc., an Atlanta-based IT security consulting firm that's sending e-mail messages to 20 consultants on Short Message Service phones from Schaumburg, Ill.-based Motorola Inc. "The consultants are always in the field, so they're not always able to check e-mail, and this is a great way to keep in touch," said Byron Pezan, a network engineer at Vigilar.

The messages are prioritized for distribution from an e-mail server and can each include up to 160 characters, Pezan said. ◗

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EDS Renews P&G Outsourcing Talks

Rival drops out; deal could be close

BY TODD R. WEISS AND JUAN CARLOS PEREZ

TWO MONTHS after ending talks with Procter & Gamble Co. (P&G) on a big IT and business operations outsourcing contract, Electronic Data Systems Corp. is pursuing the deal again. And now its chief rival has given up the chase.

Dallas-based Affiliated Computer Services Inc. (ACS) took itself out of the running for the contract last week, saying that "the financial, operational and cultural risks were too high." ACS appeared to be the only contender left when EDS withdrew in July [QuickLink 31161].

But in an unusual flip-flop, Plano, Texas-based EDS renewed its discussions with P&G earlier this month, according to a spokesman for the Cincinnati-based maker of consumer products.

The P&G spokesman said the new round of talks with EDS began before ACS announced its decision to pass on the deal. "There were just a number of differences in operations and other things where we could not reach agreement," the spokesman said of P&G's negotiations with ACS.

EDS spokesman John Clendening confirmed that the outsourcing vendor and P&G are again trying to work out an agreement. Both Clendening and the P&G spokesman said the companies could be just days away from signing a deal.

P&G is looking to outsource its back-office operations and the IT systems that support them in a deal that could affect up to 5,700 workers. The deal would involve a sale of the back-office operations to the outsourcing vendor, and EDS initially balked at the purchase price P&G was seeking.

Lesley Pool, chief marketing officer at ACS, said it's "unlikely" that the company will change its mind about giving up on the contract. ACS planned to turn P&G's Global Business Services operation into a business unit that would also seek back-office outsourcing deals with other clients, Pool said. But ACS decided that the unit's growth potential was lower than it had originally estimated, she added.

According to Pool, ACS examined P&G's financial practices, analyzed its IT systems and even looked at how P&G's IT workers would view an outsourcing arrangement with the services company. "The synergies were not there," she said.

Analysts have estimated the potential value of the P&G contract at anywhere from $4 billion to $10 billion over 10 years. But the disclosure that EDS is back in the picture at P&G came at a delicate time for the outsourcing company, which warned last week that its third-quarter financial results will be well below expectations (see story, below left).

Stephen David, CIO and chief business-to-business officer at P&G, said this month that the outsourcing deal is expected to include management of the company's enterprise resource planning system, which is based on SAP AG's R/3 applications. SAP is now rolling out its supply chain planning software and will outsource that as well, he said.

Perez writes for the IDG News Service. Computerworld's *Marc L. Songini contributed to this report.*

Outsourcing Developments

JUNE: P&G confirms that it's looking to outsource its back-office operations and systems.

JULY: EDS says it's dropping out of the running.

SEPTEMBER: EDS resumes talks with P&G; ACS withdraws from negotiations.

MORE ON OUTSOURCING

For full coverage of IT outsourcing, go to our IT Management Knowledge Center:

QuickLink a2290
www.computerworld.com

EDS Expects Big Q3 Earnings Shortfall

EDS said its third-quarter earnings won't come close to matching earlier projections, because of a shortfall in new business and lower-than-expected revenue from existing contracts with corporate users.

The company said net income for the quarter is now expected to be $58 million to $74 million, instead of the $364 million target it had set previously. Third-quarter revenue will likely come in at $5.3 billion to $5.5 billion, down from its original prediction of up to $5.9 billion.

This will be the second straight quarter that EDS has failed to meet its expectations, and the outsourcing vendor said it expects the difficulties to continue for the remainder of this year and into 2003. EDS reduced its fourth-quarter revenue and profit projections as well.

"These are not the results you've come to expect from EDS; it's not the type of news we're used to delivering, at all," CEO Dick Brown said during a conference call. "We were more optimistic than we should have been relative to our ability to fight our way through a tough economy. We expected our clients' discretionary spending to tighten, not virtually stop."

–Juan Carlos Perez, IDG News Service

Bank Awards HP $1.5B IT Deal, Exits Services Joint Venture

BY TODD R. WEISS

Hewlett-Packard Co. bulked up its outsourcing operations last week by signing a $1.5 billion IT services contract with the Canadian Imperial Bank of Commerce (CIBC) and agreeing to buy the bank out of a 4-year-old joint venture.

For Toronto-based CIBC, the two deals end a foray into the IT services business that the bank started on its own and then continued through the Intria-HP joint venture. Intria-HP manages much of CIBC's IT infrastructure and provides technology outsourcing and support services to eight other identified customers, including General Motors Corp.

Under the agreements, HP said it will gain about 1,280 IT workers and take over management of systems at CIBC ranging from desktop PCs to data center servers.

Michael Woeller, the bank's CIO, said the deals will let CIBC focus on its financial services business and should "free significant capital" that now is being spent on technology.

CIBC awarded the outsourcing contract to HP without issuing a formal request for proposals, Woeller said. "Over the last four years, the two companies have gotten to know each other really well," he noted. Woeller also said that the seven-year deal and HP's willingness to buy CIBC's 51% stake in Intria-HP "to some degree go hand in hand."

Ann Livermore, executive vice president of HP's services unit, said the contract is HP's largest outsourcing deal. CIBC, which has 8 million customers, will also become HP's largest outsourcing client.

The systems that HP will manage for CIBC include a mix of Unix and Windows NT servers, plus IBM AS/400s and the fault-tolerant NonStop Himalaya machines HP bought as part of its acquisition of Compaq Computer Corp. in May, Livermore said.

"To be a large services player, we have to deal with whatever is in our customers' environments," she said. HP will also manage IT procurement for CIBC and provide application support services.

Andrew Efstathiou, an analyst at The Yankee Group in Boston, said HP has made growing its IT services revenue a top priority. The company's services business has already expanded in recent years, Efstathiou said, but he added that it's still a far cry from the size of rivals such as IBM Global Services and Electronic Data Systems Corp. The CIBC outsourcing deal "is the type of stake in the ground that HP needs," Efstathiou said.

HP and CIBC didn't disclose the terms of the Intria-HP buyout, which is scheduled to be completed by Nov. 1. But Livermore said HP will still make money on the outsourcing contract after subtracting the amount it's paying for CIBC's stake in the joint venture.

Juan Carlos Perez of the IDG News Service contributed to this report.

Intria-HP Highlights

HISTORY: Established in 1998 to provide IT services to Fortune 500 clients

OWNERSHIP: CIBC held a 51% stake; HP owned 49%

EMPLOYEES: 1,280

CLIENTS: CIBC, GM, Delphi Automotive Systems LLC, Halliburton Co., Celanese AG, Identrus LLC, Soltrus Inc., Loblaw Companies Ltd.

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IT Helps Insurance Firms Deal With Money-Laundering Rule

Conference attendees say technology will be key in push to comply with antiterrorism laws

BY LUCAS MEARIAN
CHICAGO

THE INSURANCE industry is being pushed into the uncharted waters of dealing with antiterrorism regulations, leaving many companies looking to their IT managers for help in providing a quick fix to complicated compliance issues.

COMPLIANCE ISSUES

Until now, new antiterrorism measures such as the U.S. Patriot Act have mostly applied to banks and brokerages. But as attendees of last week's insurance-oriented LOMA Emerging Technology Conference here listened to speakers discuss possible new federal regulations, the U.S. Department of the Treasury announced a proposed rule that would require insurers to create programs aimed at preventing money laundering.

That puts the onus squarely on IT, according to Scott Harrison, a partner at McLean, Va.-based KPMG Consulting Inc. "You have got to have the ability to track and analyze your transactions," Harrison told attendees. "Compliance requires a very heavy reliance on technology."

Several IT managers at the conference said the mere likelihood of new regulations had already placed a heavy burden on them to find technology that can screen databases for known criminals or terrorists and alert corporate compliance officers to suspicious activities by customers.

"A lot will depend on how the legal department interprets the new regulations," said Joe Shea, an IT manager in the asset development division at Allmerica Financial Corp. in Worcester, Mass. "It's not only an IT challenge, but a workflow challenge."

The Patriot Act already requires financial services firms to verify customer identities, submit suspicious activity reports to the Treasury Department's Financial Crimes Enforcement Network (FinCEN) and check customers against crime databases established by law enforcement agencies. But FinCEN had deferred applying anti-money-laundering requirements to insurers in order to give federal regulatory officials more time to study the industry.

According to the rule now being proposed, at a minimum insurance companies would have to develop internal procedures and controls to root out money-laundering activities and make a series of IT investments (see box).

FinCEN narrowed the proposed requirements to life insurance and annuity products because they "allow a customer to place large amounts of funds into the financial system and seamlessly transfer such funds to disguise their true origin," according to the proposed rule.

In addition, life insurance policies can be cashed in for redeemable amounts, which make them "particularly inviting money-laundering vehicles," FinCEN said.

For life insurers, though, the rule could mean big changes. "We're going to spend a lot of time and money on monitoring that we didn't do in the past," said Shawn Bryan, vice president of e-business development at National Life Insurance Co. in Montpelier, Vt.

Bryan said National Life installed new software this year to automate the process of checking customers. "I'm sure everybody's already got it or is working on it," he added.

What's in Store

Regulators will likely require insurers to take the following IT-related steps:

- **Development** of systems that can help provide money-laundering controls
- **Use of** more sophisticated database surveillance tools to identify suspicious activity
- **Checking** customer databases and transactions against the list of restricted countries established by the Federal Office of Foreign Assets Control
- **Use of** an IP-based virtual private network connection to send reports to the Treasury Department

WIRELESS FUTURE

Some insurers are eyeing wireless technology but haven't fully embraced it yet.

QuickLink 33086
www.computerworld.com

U.S. Faces Nanotechnology R&D 'Dogfight'

Europe, Asia are matching U.S. funds

BY PATRICK THIBODEAU
WASHINGTON

Countries in Europe and Asia are keeping pace with U.S. spending on basic research in nanotechnology, according to experts in that area. Consequently, U.S. investment in the technology, which manipulates matter atom by atom and is expected to spur a computing revolution, is only about 25% of the world's total.

"It's a dogfight — the rest of the world simply is not going to allow us to outspend them," said Stanley Williams, a fellow and director of quantum science research at Hewlett-Packard Co., in an interview last week. "We are going to have to be qualitatively better because we are not going to be quantitatively larger."

As foreign spending increases, nanotechnology companies in the U.S. are struggling to find funding.

For instance, Charles Janac, president and CEO of Nanomix Inc., made presentations to 41 venture capital firms and attended an exhausting 145 meetings over nine months before receiving $9 million in funding earlier this month for his nanotechnology electronic component and sensor product company in Emeryville, Calif.

He's lucky. Many other firms probably won't get funding. "I fear for them," said Janac.

The government could stimulate nanotechnology development by spending more on research to fuel product development, said researchers and private nanotechnology experts.

The race among nations to be leaders in this technology prompted Sen. Ron Wyden (D-Ore.) to introduce a bill last week to create national nanotechnology research centers and coordinate federal spending. Wyden is chairman of the Senate's Science, Technology and Space Subcommittee.

Separately, the Bush administration is seeking $679 million for basic nanotechnology research for the fiscal year beginning Oct. 1 — a 17% increase over this year.

Business investment in nanotechnology start-ups is also on the rise. Investment in these companies stood at $100 million in 1999 and is projected to reach $1 billion by next year, according to Mark Modzelewski, executive director of the New York-based Nano-Business Alliance, who testified last week at a Senate hearing on nanotechnology.

But despite these potential gains in funding, experts say more research and development funds are needed, along with reforms in how universities use research funds.

Williams said major companies have helped fund nanotechnology research at universities only to find researchers using their findings to form start-up firms.

"Large companies have been burned many, many times by giving money for research to universities," he said.

Nano Revolution

Nanotechnology is expected to ultimately **make it possible to build computers in which molecules serve as diodes, wires and transistors** – all linked chemically. From these CPUs, tiny computing devices would emerge that use very little power and yet are millions or billions of times more powerful than today's Pentium chips.

DEVELOPMENTS

- Just this month, HP said it has **created the highest-density electronically addressable memory** on record: a 64-bit memory using molecular switches that are less than one square micron in size, a bit density 10 times greater than a silicon chip.
- In June, IBM said it had **produced a nano-scale storage system** capable of a data storage density of 1 trillion bits per square inch – 20 times higher than the densest magnetic storage available today.

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[1]See IBM study by Timothy J. Dell, "A White Paper on the Benefits of Chipkill-Correct ECC for PC Server Main Memory," dated November 25, 1997, available at the following: http://www.ibm.com/servers/eserver/pseries/campaigns/chipkill.pdf. IBM, the e-business logo, Chipkill, pSeries and *e-business is the game. Play to win* are trademarks or registered trademarks of International Business Machines Corporation in the United States and/or other countries. UNIX is a registered trademark of The Open Group. Other company, product and service names may be trademarks or service marks of others. ©2002 IBM Corporation. All rights reserved.

BRIEFS

Cisco Rolls Out Three Midrange Switches

Cisco Systems Inc. introduced a line of three midrange switches that support up to 240 Ethernet ports and include built-in redundant power supplies. The Catalyst 4500 series switches use the same line cards and supervisor engines as the 2-year-old Catalyst 4000 models, Cisco said. Prices start at $14,475 for the new switches.

EMC Adds Storage Management Tools

EMC Corp. expanded its line of multivendor storage management software, adding an application that automates the process of installing and reallocating resources on storage-area networks. Hopkinton, Mass.-based EMC also upgraded several management tools and launched a hosted application performance monitoring service.

DynCorp/IBM Team Wins IT Deal at EPA

A team of vendors led by Reston, Va.-based DynCorp was awarded a seven-year deal, potentially worth more than $850 million, to manage IT systems for the U.S. Environmental Protection Agency. The team includes IBM, which said it will run the EPA's data center systems, e-mail services and Web sites under a subcontract valued at up to $230 million.

Short Takes

Cambridge, Mass.-based INTERSYSTEMS CORP. today plans to announce an upgrade of its Cache multidimensional database with built-in transaction data analysis capabilities. . . . Santa Clara, Calif.-based NETWORK ASSOCIATES INC. and Cupertino, Calif.-based TREND MICRO INC. both said they won contracts to supply antivirus software to the U.S. Defense Information Systems Agency.

Savvy CIOs Go Beyond ROI Metrics in IT Budget Process

More IT execs are using sophisticated calculations to figure shareholder value

BY THOMAS HOFFMAN

ROIWATCH

WHILE MANY IT managers are satisfied with simply determining the cost reductions or payback generated by an IT investment, a small but growing number of IT leaders are setting their sights beyond traditional ROI metrics. Their goal: to demonstrate the shareholder value and complete financial impact of an IT project.

As many corporate IT executives struggle to nail down their fiscal 2003 spending levels this budget season, some savvy CIOs are making use of sophisticated financial modeling techniques. Those techniques, such as net present value and internal rate of return (IRR), generate more telling and accurate estimates of the full financial impact that IT investments might yield, these CIOs say.

Calculations such as IRR help IT managers pinpoint "what aspects of the IT system are delivering value," such as improved cash flows or increased sales, said Chris Gardner, co-founder of iValue, a Chicago-based consulting firm that helps its customers cost-justify their IT investments.

IRR Proponents

That's one of the reasons why Gaylord Entertainment Center CIO Kent Fourman has become an advocate of IRR and discounted cash flow calculations. Last year, the Nashville-based hospitality and entertainment company, whose interests include the Grand Ole Opry, brought in a new management team that "sponsored" this approach for all facets of the company, including the IT organization.

Since then, Fourman has applied IRR calculations to several IT/business projects, including a revenue-generating opportunity for his company that he's reluctant to elaborate on for competitive reasons. A detailed IRR analysis of the plan "came in with a very positive IRR that greatly exceeded the cost of capital, even though it is a very expensive, multimillion-dollar project," he said. Those findings were enough to persuade senior management to approve a proof-of-concept trial later this year that could lead to project funding for next year.

The IT organization at Valassis Communications Inc., a Livonia, Mich.-based marketing services firm, switched to an IRR model in June after an ROI assessment for an e-procurement system was unable to provide an accurate analysis of the project's financial impact on the company, said Amy Courter, vice president of IT. "ROI works well when you're [looking at] revenue generation or cost savings," she said. "But what about when it spans both? That's why we thought [IRR] could help us."

The IRR analysis helped Courter and her team determine that the e-procurement system could help Vlassis save more than $100,000 per year in volume discounts on its purchases. The calculations also revealed that the company could pass on some of the cost savings from the system to its customers and generate $250,000 per year in incremental revenue, said Courter. All told, the IRR for the e-procurement system "is around 20%, and the payback is expected in just about two years," she said.

Limitations

Fourman and Courter both acknowledge that it's nearly impossible to apply IRR to infrastructure or equipment upgrade investments, such as expanding a server farm. Accordingly, not all IT executives see a need to use sophisticated calculations to cost-justify IT investments within their organizations. "We take a very traditional yet pragmatic and practical approach toward understanding the value that IT projects deliver to our organization, some of which is quantifiable, most of which is very difficult to quantify," said Phil Go, CIO at Barton Malow Co., a Southfield, Mich.-based construction management firm.

Not every project needs to be quantified, say some IT executives.

"Visionary retail companies are thinking in ways that aren't necessarily justifiable on paper, but they know in their guts it's the way to move," said Cathy Hotka, vice president of IT at the National Retail Federation in Washington. That type of approach is also aided by the success of past technology investments in the retail sector that "have shown their merit, and a lot of purchases don't have to be cost-justified anymore," she added.

But for Valassis, "IRR always made such great sense," said Courter. "Instead of having a room full of business people figure out [the returns on an IT investment], we do it for them. While I always seek guidance to make sure it's prioritized correctly, we're in great shape when we go in the room."

Financial-ese

Here are definitions for three financial calculations that can be used to determine the full financial impact of an IT project:

Internal rate of return (IRR)
WHAT IT IS: IRR expresses the dollar return expected from a project as an interest rate. Once the rate is established, you can compare it with rates you would earn by investing in other projects. It's informally known as the "hurdle" rate, since it's usually the lowest rate of return that management will accept.
WHY YOU NEED TO KNOW IT: It's a common financial metric used by senior management that calculates the time value of money. Typically, a project must earn an IRR that's several percentage points higher than the cost of borrowing – that compensates the company for its risk exposure and time.

Net present value (NPV)
WHAT IT IS: NPV refers to the future net cash flow that a project is expected to deliver, minus the investment. It defines the value of a project in "today's dollars."
WHY YOU NEED TO KNOW IT: NPV can help your IT department win internal investment dollars by showing the finance department that investing in an e-learning system, for example, will yield a high return in terms of reduced travel costs, highly focused training and more.

Discounted cash flow (DCF)
WHAT IT IS: DCF is a way to calculate the value of a high-priced item over time. In a server leasing agreement, for example, it's calculated by adding the initial cash down payment to the monthly leasing payments, then subtracting that sum from what it would have cost to purchase the servers at the outset.
WHY YOU NEED TO KNOW IT: Negotiating upfront what the residual value of equipment will be at the end of a lease enables an IT manager to use that value – rather than the higher market value – to renegotiate the lease for subsequent terms.

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Vendors Spar On Workplace Net Surfing

Firm's no-monitoring claim being disputed

BY PATRICK THIBODEAU
WASHINGTON

IT managers who want to control workplace Internet use have a new adversary, a San Diego company that claims to make it possible for employees to surf anonymously.

Anonymizer Inc. last month released a new version of its product, Private Surfing 2.0, and coupled it with a bold marketing claim: "Surf at work without being monitored."

Indeed, employees are being encouraged to pay $29.95 annually to circumvent systems put in place by their IT departments. But the message to surf-happy employees ought to be "buyer beware."

No sooner had Anonymizer begun its marketing campaign than Orange, Calif.-based 8e6 Technologies Inc. (a takeoff on the slang expression "eighty-six" meaning "to eliminate") announced a simple library update to thwart Anonymizer. Another security and filtering company, St. Bernard Software Inc. in San Diego, said it didn't even have to make changes to thwart Anonymizer's product.

Potential for Mischief

IT managers such as Harold Moscho, director of technology management for 6,000 users at MultiCare Health System in Tacoma, Wash., are nonetheless concerned by the development.

"I hope that it is not something that is very widespread," said Moscho, who's using 8e6's filtering technology. He said he's concerned that Anonymizer may appeal to people "who have a great deal of desire for vengeful or mischievous" behavior.

Users of Private Surfing surf the Internet through Anonymizer's network. They log on through their Web browser and get IP addresses and domain names that can't be traced back to them.

The filtering services are thwarting employees by blocking access to Anonymizer.com. And if the connection is encrypted, 8e6 will time-out or cut off an encrypted link, said Mark Parker, a senior engineer at 8e6.

Anonymizer officials dispute claims that its system can be blocked by these filters; if blocked, the Anonymizer.com domain can make available other IP addresses and domains.

Regardless, firm founder and president Lance Cotrell downplayed the workplace surfing claim. "We're not really pushing the surfing at work." He acknowledged that employers can use a range of tools, such as keystroke monitoring, to track employee Internet use. ◗

Surfing Turf War

NO RIGHT: Employees who want to surf the Web at work have no legal protections, and there's nothing to prevent employers from monitoring them, say experts.

NO LAWS: Efforts by state and federal lawmakers to impose a "notice" requirement have failed in the face of business opposition.

BMC Ups Performance Management Software

Four new or upgraded tools due for release

BY MATT HAMBLEN

BMC SOFTWARE INC. today plans to announce four new or upgraded performance management and predictive analysis tools for use in planning installations and upgrades of corporate IT systems.

The new products are part of an Enterprise Performance Assurance initiative at Houston-based BMC that combines a variety of performance management tools for distributed systems and mainframes under a single business unit.

BMC said it will immediately release Web-based software, called Patrol Perceive, that's designed for use by business managers and other workers outside of IT departments. The software can help users evaluate how a network or part of a system will perform while running under certain conditions or with specific applications, according to BMC.

For example, a corporate executive without specific technical skills could gauge how a network would handle a sudden influx of end users following an acquisition, a BMC official said. Patrol Perceive is being positioned as a low-cost alternative to BMC's more sophisticated assessment tools. Pricing starts at $20 per Windows user.

Richard Fronheiser, a capacity planning specialist at AFLAC Inc. in Columbus, Ga., said Patrol Perceive, or something similar that could be developed in-house, would be a valuable add-on tool for the insurer.

AFLAC's IT department already uses BMC's higher-level Patrol Performance Assurance tools for capacity planning and performance analysis, Fronheiser said. But Patrol Perceive could be used throughout the company to evaluate the performance of applications and systems, he added.

BMC will also announce that it plans to roll out a new version of Patrol Performance Assurance in December that includes support for remote management of Windows systems, without the need to install agents on the machines. The upgrade will also include an open architecture that lets performance data be moved to other vendors' software.

The two other new products, Mainview Performance Assurance and Patrol for iSeries-Predict, are due for release next week. The Mainview upgrade extends BMC's predictive analysis capabilities for IBM's zSeries mainframes to include virtual machine partitions that run under Linux. BMC said Patrol for iSeries-Predict will be able to identify how changes to IBM's iSeries and AS/400 systems will affect their responsiveness.

James Governor, an analyst at Illuminata Inc. in Nashua, N.H., said BMC's announcements should help it meet the needs of a wider range of users. IBM's Tivoli Software management software unit began a similar effort last year, he said. BMC also competes in this market with Computer Associates International Inc. ◗

Continued from page 1

Wireless LANs

keys that can be changed rapidly, rather than the static keys used in WEP. Not only are WEP keys static, but every user working with a particular wireless LAN access point receives the same key, allowing hackers using widely available key-cracking software to crack keys with relative ease.

Barkley said the SSN partners don't plan to wait until the IEEE issues its final version of the 802.i standard but will instead incorporate TKIP into their products as soon as possible. And rather than wait for the next Windows XP service pack release, Microsoft will incorporate TKIP into XP before the end of the year, he added.

Dennis Eaton, chairman of the Wireless Ethernet Compatibility Alliance (WECA), a wireless LAN industry trade group in Mountain View, Calif., said that final details on an industrywide SSN standard are "very close" and that the WECA plans to make a major announcement next month.

John Pescatore, an analyst at Gartner Inc., said plans by the industry to leapfrog the IEEE 802.1 standards body make sense because the IEEE process "moves very slowly" and the wireless LAN industry needs better security immediately.

Barkley said the first Windows XP service pack, released earlier this month [QuickLink 32875], includes support for Protected Extensible Authentication Protocol (PEAP), which fixes a known vulnerability in the new 802.1x standard that authenticates the identity of a user with a central server. Dan Bailey, director of wireless networking at NTRU Cryptosystems Inc. in Burlington, Mass., said PEAP can help rectify flaws in 802.1x that could possibly let a hacker "hijack a user authentication session" through what he called "a man-in-the-middle attack" on such a session.

Linda Horiuchi, a spokeswoman for Cisco, said the company intends to add PEAP support to its Wireless Security suite this week but declined to provide further details.

Pescatore said that while PEAP and TKIP haven't gone through the IEEE approval process, they will become de facto standards because of the size and influence of the companies backing them. "They're better than the [current] alternatives, and [the manufacturers] have to ship something." ◗

JUST THE FACTS

The Safe Secure Networks Project

Members include Agere Systems, Cisco Systems, Intersil, Microsoft, Proxim and Symbol Technologies.

The group plans to leapfrog the IEEE standards process by adopting a protocol known as TKIP to help prevent the cracking of keys used to secure wireless LANs.

A major SSN announcement on TKIP is slated for next month; Microsoft plans to introduce TKIP in Windows XP by the end of the year.

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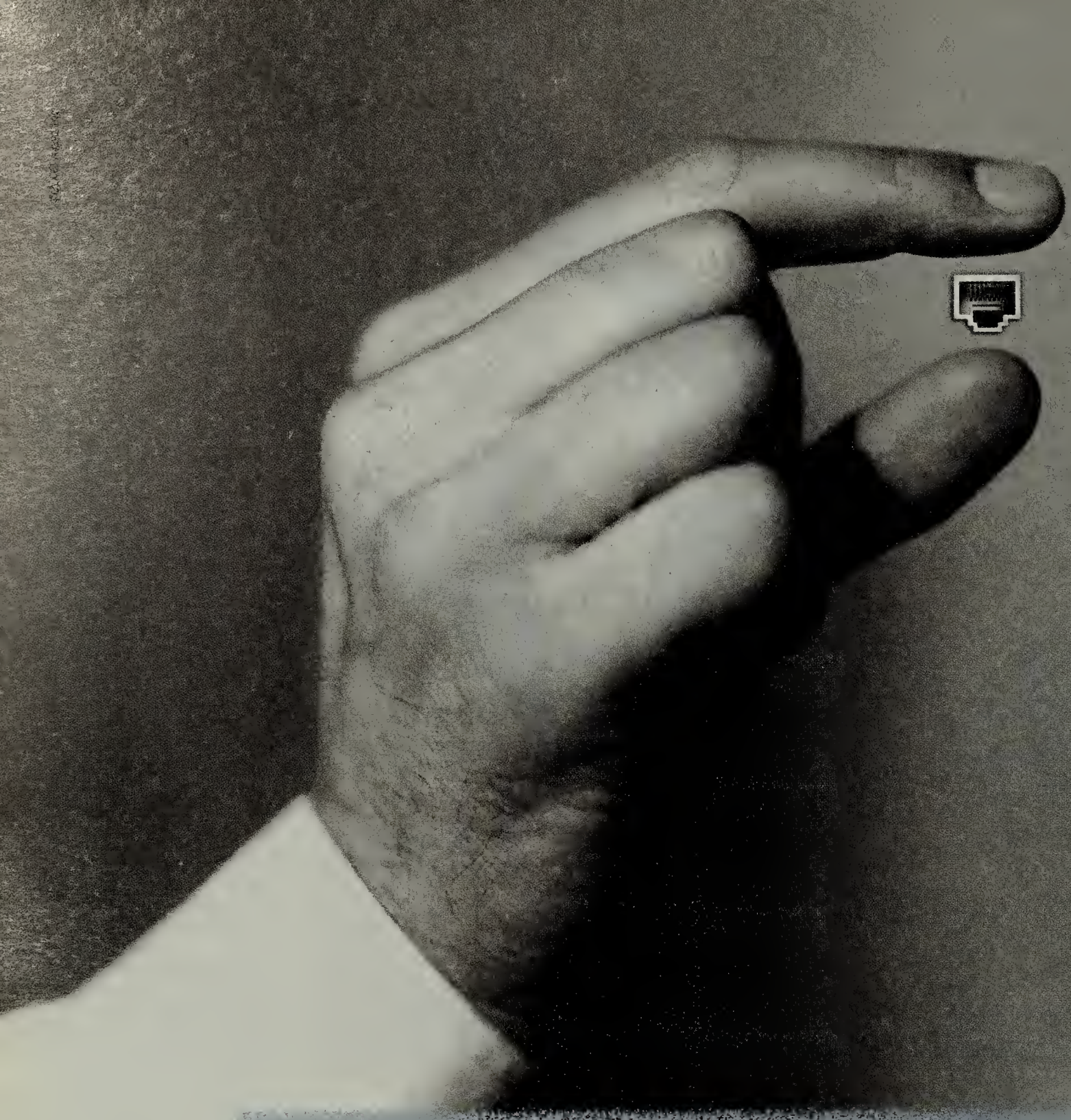

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COMMUNICATION WITHOUT BOUNDARIES

IBM, Intel Set Plans to Work Together on Blade Servers

Devices will support e-mail, other applications

BY BOB BREWIN

Technology heavyweights IBM and Intel Corp. last week said they're teaming up to develop high-density blade servers that will use Intel processors and be able to run corporate applications such as e-mail, firewalls and e-commerce systems.

The two companies are also cooperating on the development of blade server chassis and related networking and systems management technology. Tim Dougherty, director of blade server strategy for IBM's server group, said the company plans within a month to introduce new systems developed through the partnership.

Blade servers are modular computers housed on a tightly packed board that's designed to squeeze more processing power into a standard rack with far less cabling than older rack-mounted systems require. Framingham, Mass.-based IDC predicts that worldwide blade server sales will total only about $120 million this year but will grow to $3.7 billion in 2006.

The move by IBM and Intel follows Hewlett-Packard Co.'s introduction last month of dual-processor blade devices aimed at applications such as Web hosting and streaming media [QuickLink 32499]. HP said it will add a four-CPU model early next year, and Dell Computer Corp. disclosed that it plans to field a line of modular blade servers next year.

IBM already offers low-end blade servers. Now it plans to use Intel's Xeon server chips to move into more complex middle-tier applications, said Dougherty, citing the Microsoft Exchange and Lotus Domino e-mail systems, as well as front-end processing for enterprise resource planning systems.

"They're putting more power on the blade," said Gordon Haff, an analyst at Illuminata Inc. in Nashua, N.H.

Phil Brace, director of marketing at Intel's enterprise platforms group, said the two companies are initially working on devices based on the Xeon and Xeon MP processors. But systems will also be built around the 64-bit Itanium 2 chip that Intel released in July, he added.

Both IBM and Intel will be able to offer all the jointly developed products to their respective customer bases. IBM said it will market a full portfolio of blade server technologies to corporate users. And later this year, Intel plans to make Xeon-based blade servers available to hardware vendors who don't want to develop their own systems. ◗

RLX Rollout Boosts Blade Server Power

RLX Technologies Inc. last week expanded its line of blade servers, releasing more powerful hardware as well as upgraded systems management and clustering software.

The Woodlands, Texas-based RLX rolled out a high-end ServerBlade 1200i system that's based on Intel's 1.2-GHz Pentium III chip for mobile devices. The new machine offers twice the memory capacity and 50% more processor speed and disk storage space than the 800i model RLX, which shipped in March.

Until now, RLX has pushed to fit as many blade servers as possible into a single system chassis. The company can squeeze 24 of its earlier high-density servers into one cabinet, thanks to the use of processors made by Santa Clara, Calif.-based Transmeta Corp.

The more powerful Pentium III chip limits how closely the 1200i servers can be stacked together, but it also makes them more suitable for "performance-sensitive" applications, said John Schmitz, a marketing manager at RLX.

Users can put 12 of the 1200i blades in one of RLX's chassis. Each blade server supports up to 2GB of memory and two 60GB disk drives, RLX said. Prices start at $1,529.

-- Ashlee Vance, IDG News Service

UnitedLinux Group Names GM, Readies Beta Code for Merged OS

BY TODD R. WEISS

UnitedLinux, the fledgling vendor consortium that's trying to develop a uniform version of the open-source operating system, last week announced the hiring of its first general manager and said it plans to release a beta-test version of the software today.

The beta source code will be posted on the UnitedLinux Web site and made available for free download. Paula Hunter, who is now heading the joint development partnership, said during a teleconference that one of her initial priorities will be to help UnitedLinux prepare for a scheduled launch of its operating system by year's end.

Hunter said she will also focus during the next 100 days on trying to convince additional companies to join the UnitedLinux effort and on developing training, certification and support programs for the new operating system. She worked most recently as vice president of marketing at Xevo Corp., a Marlboro, Mass.-based vendor of service management software.

UnitedLinux was formed last spring by four rival vendors of the open-source software — SuSE Linux AG, Conectiva SA, Turbolinux Inc. and Caldera International Inc., which has since changed its name to The SCO Group. The companies agreed to combine their separate Linux offerings into a single operating system aimed at corporate users [QuickLink 30239].

More than a dozen hardware and application software vendors are also taking part in the consortium, according to UnitedLinux officials. But Red Hat Inc., the dominant Linux vendor in the U.S., is notably absent from UnitedLinux.

George Weiss, an analyst at Gartner Inc. in Stamford, Conn., said another potential problem for UnitedLinux is the fact that Hunter doesn't have a background in Linux or open-source technology. "The nails are starting to get hammered into the coffin" of the consortium, he said.

Hunter acknowledged that she has not worked directly with Linux, but she said her ability to help reach a consensus is more important. "My responsibilities are to pull together the collective expertise of four companies with deep Linux experience," Hunter said. ◗

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Worm Sets Up Peer-to-Peer Attack Network

BY PAUL ROBERTS

A new computer worm infected thousands of Linux-based Web servers last week and used them to create a peer-to-peer network with the potential to carry out distributed denial-of-service (DDOS) attacks. But security analysts were divided over how big a threat the worm heralds for systems on the Internet.

The worm, known officially as Apache_mod_ssl and more informally as Slapper, exploits a previously disclosed buffer overrun vulnerability in Version 2.0 of the Open Secure Sockets Layer data transmission protocol. F-Secure Corp., a security software vendor, said nearly 14,000 systems worldwide running the open-source Apache Web server software had been infected by Slapper by last Monday.

Coordinated Attack

Once they have been infiltrated by the worm, Web servers effectively become hosts in a large peer-to-peer network of infected machines, which then scan for other vulnerable systems in a coordinated effort, analysts said.

That sets Slapper apart from its worm predecessors, said Russ Cooper, a security consultant at TruSecure Corp. in Herndon, Va. "Slapper is new in the sense that [the infected machines] keep in touch with each other using their own network," he said.

The current version of Slapper doesn't appear to be programmed to carry out actual DDOS attacks, Cooper added. Still, he cautioned that future variants of the worm might include the ability to send and receive instructions.

F-Secure said many of the infected systems were quickly cleansed by IT managers. By last Thursday, scans conducted by F-Secure detected fewer than 200 active IP addresses in Slapper's peer-to-peer network.

But Tony Magallanez, a systems engineer at F-Secure's North American operations, said Slapper's source code is well documented. "Anybody getting a hold of the source can quickly learn how to exploit the virus itself," he said.

While setting up a peer-to-peer network of infected devices is new behavior for a worm, it's not an entirely new phenomenon, said Marty Lindner, an incident-handling team leader at the CERT Coordination Center at Carnegie Mellon University in Pittsburgh.

"This is not the first time that we've seen something that produces a command-and-control network," he said. "That's not new. This is just another method of delivery."

Roberts writes for the IDG News Service.

MARYFRAN JOHNSON

Innovation Still Matters

THE HEAVY FOG of buzzword-compliant marketing and breathless exaggeration surrounding most technology products would give any sober IT manager pause before purchasing a mouse pad, let alone something important. That's especially true today, when proving the value of IT spending with hard numbers and bottom-line results is not just politically smart but also downright essential.

MARYFRAN JOHNSON is editor in chief of *Computerworld*. You can contact her at **maryfran_johnson@computerworld.com.**

In our front-page story last week ["Windows XP Slow to Gain Foothold," QuickLink 32873], the reluctance of corporate IT to jump on the next Microsoft bandwagon spoke volumes for the practical, payback-oriented mind-set of technology buyers.

"This is an upgrade that offers nothing to a business customer," one CIO said dismissively about XP. Others cited the high costs, the low need and the general weariness from having just slogged through the Windows 2000 upgrade.

Yet we know that even with IT budgets flattened and spending squeaky tight, the need for business innovation is still there, perhaps more pressing than ever before. So, what products are worth a second look through the beady eyes of IT buyers? The best source for that answer, of course, would be you and your peers, and that's whom we turned to for *Computerworld*'s Innovative Technology Awards 2002.

Beginning on page 26 in this issue, we profile the 10 winners in this customer-choice contest, which drew about 200 nominations from the ranks of IT customers themselves. The winners ranged from small companies you've likely never heard of to major vendors such as IBM and Software AG. Their offerings included everything from network security and enterprise software to data management, biometrics and wireless optical technology.

In some cases, the ROI was memorably speedy. When First Citizens Bank installed an intrusion-detection system from Entercept Security Technologies, it was just three days before the infamous Code Red worm struck nationwide. "We kept humming along, without skipping a beat, so . . . that was a definite return on investment," said Jay Ward, a senior network security analyst at the bank.

In other cases, the customer satisfaction results were compelling enough to wave the expenditure past budget gatekeepers. Terabeam's wireless optics product, for example, enabled the Elliott Grand Hyatt Hotel in Seattle to provide more flexible high-bandwidth connections for the demanding techies who often stay there.

In every case, we noticed that the driving force behind the tech investments in these companies' products was the potential for real payback, really fast. Nobody was looking for the buzz of a hot product, but everybody was looking for ways to improve business results. Innovation still matters.

* * *

Another way we hope to help you sort out the most promising products on technology's cutting edge is with a column that made its debut in our news section last week [QuickLink 32813]. Longtime technology journalist Mark Hall will be taking a skeptical, flinty-eyed look at upcoming products and services in his "On the Mark" column each week (see page 8). "The best IT operations use a balance of mundane products and some pretty cool technology," Mark notes. "Staying aware of what's on the cutting edge — and what's worth a second look — is easier said than done with literally thousands of companies vying for your attention."

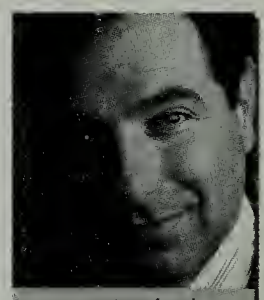
We hope you'll find Mark's new column to be a highly useful, hype-free technology filter. His mandate is to look ahead and detect the most intelligent signs of life in the vendor community. He'd love to hear from you with ideas and suggestions at *mark_hall@computerworld.com.*

PIMM FOX

Desktop Management Boosts IT

ONE OF THE biggest problems for Stephen Kutzer when he joined Washington-based CarrAmerica Realty as vice president of IT operations was that he didn't know the true state of, well, the company's IT operations.

CarrAmerica owns 25 million square feet of office space in 11 major U.S. markets and manages 60 additional buildings in the same areas. It counts leasing and building agents, porters, lobby receptionists and security personnel as possible computer users. And while a third of all its workers (in finance, accounting, IT and human resources) are in northern Virginia, the rest are spread around the country.



PIMM FOX is a freelance writer in San Francisco. Contact him at **pimmfox@pacbell.net.**

"I didn't know who was using what," says Kutzer. "I didn't even know exactly how many users we had, because some of our 900 people never touch a computer."

Kutzer decided to deploy a desktop management system and to outsource help desk functions, using an Internet connection and thin-client software from Everdream Corp.

Applying the ASP concept with a heavy emphasis on service-level agreements (help desk calls must be answered in under 60 seconds), Everdream gives Kutzer an inventory of equipment and information to calculate upgrades and identify problems.

Among the issues Everdream turned up was that a previous deployment of Windows 98 had been compromised because of poor imaging onto the desktops. And in addition to problem discovery, Kutzer got better information about his infrastructure. For example, with a couple of clicks, he can export into a spreadsheet user names, locations, computer make and model

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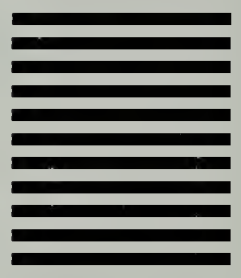

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numbers, CPU information, how much data is on a hard drive, and its software configurations.

Rolling out managed desktop services is less cumbersome because it's possible to check specific requirements. "I know which machines we need to upgrade to XP, because I can see who needs a 500-MHz processor and 128MB of RAM," he says.

A surprise for Kutzer was the number of applications in use at CarrAmerica. Everdream identified more than 1,600 unique applications: "I was worried if we were in compliance," Kutzer says. Now the company is.

Kutzer secured senior-level buy-in to managed desktop services by turning over help desk functions to Everdream, cutting four IT staffers in the process. Currently, CarrAmerica relies on Everdream for 77% of trouble tickets (the goal is 90%), and a 24-hour help desk lets people beyond the Beltway get help during their work hours.

In addition to the benefits of knowing what's going on in IT, the company can use Everdream to help implement IT standards after an acquisition.

"Senior managers got that right away," says Kutzer. "And my IT people like it because they get to do more interesting things than fix printers." ◗

DAN GILLMOR

Most Trade Shows Lose Focus on IT

HERE'S A CONFESSION: For all their nuttiness and hassle, I like trade shows. But I'm running low on good reasons to attend them these days. And from the looks of things, IT managers aren't finding many compelling reasons either.

Lots of companies, including some big ones, have run out of reasons to rent booth space, too. Sony, for example, has announced its withdrawal from Comdex, the formerly essential show held each November in Las Vegas.

What's happened to make this so? I'm not sure which is the chicken and which is the egg here, but exhibitors are less inclined to participate in shows, and the rest of us aren't attending.

Certainly, the technology recession has made it more difficult for companies to spend on trade exhibits. But maybe that's also because there's so little true innovation occurring today. In a market where a few giants are increasingly dominating everyone else, that means there's less to show.

And with travel budgets getting whacked, where IT execs might have sent three or four people in better times to a big show, now they'll send one or two at most.

DAN GILLMOR is technology columnist at the *San Jose Mercury News*. Contact him at dgillmor@sjmercury.com.

The basic unpleasantness of some shows is another factor. When you're waiting in endless taxi lines, paying extortionate hotel room rates and generally being hassled in every way, the fun of the event tends to pale a bit.

Don't forget the glut of shows that sprang up during the tech boom. You could have spent your entire year doing nothing but attending trade events, most of which featured the same stuff you saw at the last one. That helped make even the best shows seem less special.

The Web itself has been a factor. Some companies that used big shows for product announcements have learned that they can get people's attention in other ways and that the Net is the world's greatest exhibit floor, especially for demonstrating software.

So why are some shows still alive, if not thriving? Because for all the reasons not to go, there are still plenty of reasons to attend even now.

Knowing general trends is fine, but there's nothing like seeing the entire trade lined up aisle after aisle. Shows are also the place for meetings. When so many executives and product managers turn up in one place, the expression "fish in a barrel" comes to mind. Many companies do their most important schmoozing off the show floor in hotel suites surrounding convention centers, showing their best wares to their biggest users.

Finally, don't forget the serendipity factor. I always meet new people or unexpectedly run into old acquaintances, and those encounters can be valuable. At every show I attend, moreover, I walk the outer reaches of the exhibit floors, visiting the cheaper-to-rent booths that get much less traffic because of their locations. Invariably, I come across a product or company that isn't just on the edge of the floor, but also on the cutting edge of its field.

My bottom line: I'm more picky now. But I won't stop attending conferences entirely. ◗

READERS' LETTERS

H-1B Side Effect

I FOUND YOUR article "Congress May Bear Brunt of H-1B Anger" [QuickLink 32229] very interesting. Being among the many unemployed technology professionals for more than a year now, I feel that the Congress who created this mess should get an earful, and a boot out of office. But there is one very amusing side to the mess: In the last few months, the recruiters I talk with regularly are being quietly replaced by the H-1B people they hired only a year or so ago.

Virgil Anderson
Senior consultant
Kernersville, N.C.

Unreported Costs

IT'S INTERESTING that *Computerworld* is devoted to advanced technologies and the future of systems integration, and yet it fails to cover the most fundamental structure necessary to accommodate the connectivity and integration you are reviewing. Without a properly designed copper and fiber infrastructure, changes in technology direction will be so costly as to render any ROI impotent in the face of economic downturn. For example, there's little opportunity to convince senior management that VOIP is cost-effective when the data center design can't accommodate the change requirements without significant overhaul.

If you're wondering how I know all this, I was vice president of global infrastructure at Citibank for a number of years and instituted a design and methods policy that allows upgrades without disruption. The real world is a lot more complicated than the high-level applications world that many of your articles describe.

Martin Zuckerman
Director
Teswaine Inc.
New York
m.zuckerman@teswaine.org

Eliminating Paper

I LIKED THAT the column "9/11 Prompts Paper Chase out the Door" [QuickLink 32533] provided a concrete example of how an IT process actually added value to an organization, both by enabling more collaboration and making it easier to access documents across the organization (and cut down on paper waste). Most organizations I have contact with don't even try to educate employees on using electronic documents and report-viewers to save on paper; everyone still prints everything. Perhaps it's time for industrial-strength sticky notes or an annotation software package that will gain widespread adoption.

George Rios
Decision-support manager
Loma Linda, Calif.

Remotely Accurate

IN THE 20 YEARS I've been consulting in the telecommuting field, I don't remember seeing an indictment of this work practice that is more inaccurate and unfounded than David Zimmer's letter in the Aug. 26 issue [QuickLink 31925]. The government was never "levying penalties if companies didn't institute telecommuting." The Clean Air Act amendments required some employers in some areas to find ways to reduce the number of vehicles their employees drove to work, but telecommuting was neither mandated nor was its nonuse punished. And telecommuters aren't "routinely passed over for promotions and special projects" (while this may happen sometimes, it's much more common that telecommuters' managers report those employees to be more promotable and more capable of broader responsibilities). The biggest obstacles to telecommuting, as Zimmer suggests, are management attitudes about remote work. I've often told clients that the biggest obstacle to telecommuting is the wealth of myth and misinformation about exactly what it is, how it works and how easily it can be tailored to meet business needs.

Gil Gordon
Gil Gordon Associates
Monmouth Junction, N.J.

COMPUTERWORLD welcomes comments from its readers. Letters will be edited for brevity and clarity. They should be addressed to Jamie Eckle, letters editor, Computerworld, PO Box 9171, 500 Old Connecticut Path, Framingham, Mass. 01701. Fax: (508) 879-4843. E-mail: letters@computerworld.com. Include an address and phone number for immediate verification.

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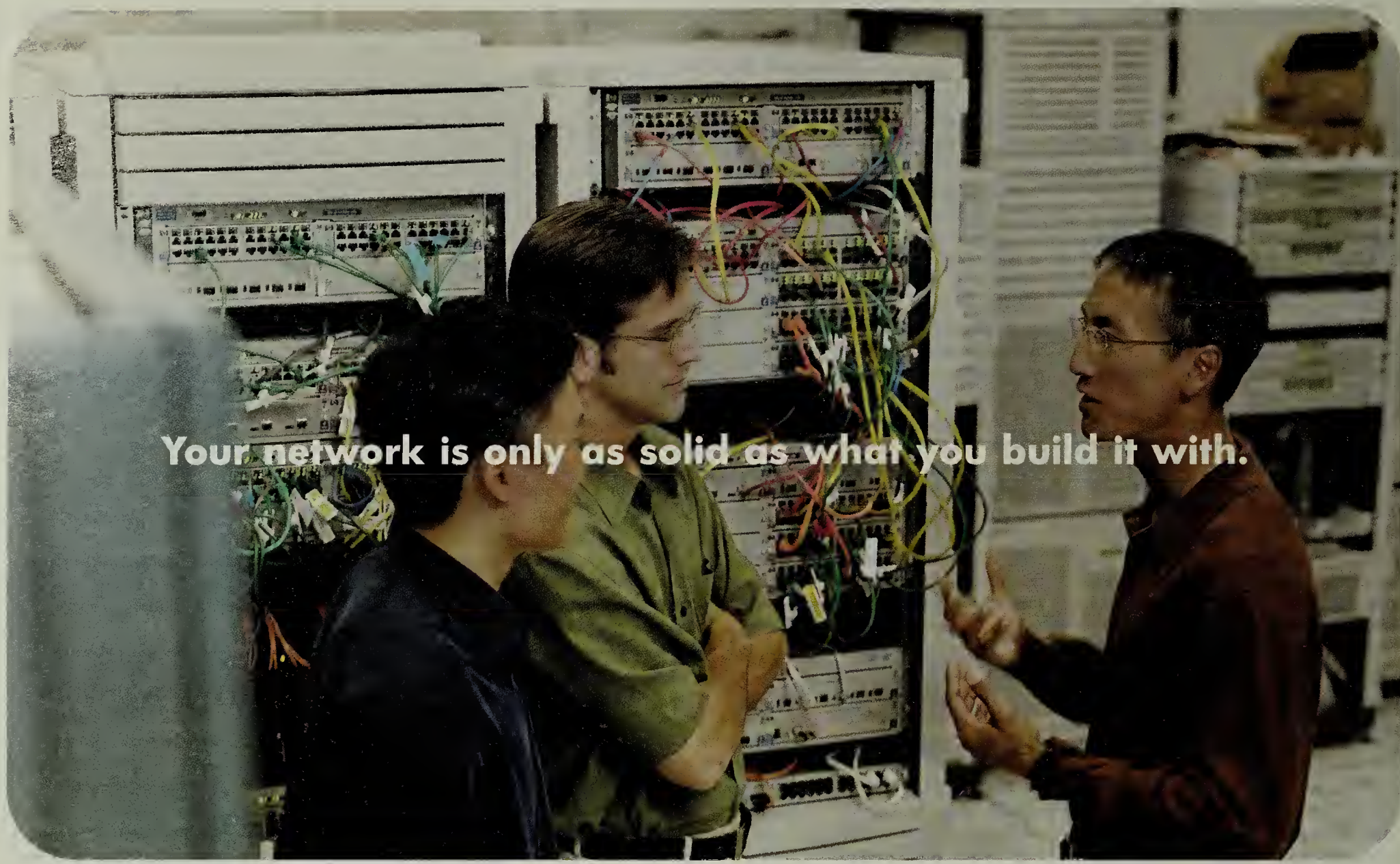

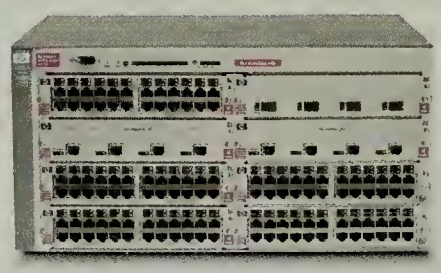

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THIS WEEK

MICHAEL ROBINSON

US AIRWAYS' Stanley Davis tapped Arbortext to create a data store of content.

TOP-FLIGHT TECHNOLOGY

COMPUTERWORLD INNOVATIVE TECHNOLOGY 2002

Last spring, *Computerworld* asked IT customers to nominate vendors offering leading-edge products and services that provide measurable payback on investment. *Computerworld* editors and a panel of outside experts sorted through the 200 nominations we received and selected the winners of the Innovative Technology Awards 2002, the first in what will be an annual recognition of excellence. **The winners are:**

ENTERPRISE SYSTEMS
- Arbortext Inc.
- IBM
- MetraTech Corp.

SECURITY
- BioconX Inc.
- Mazu Networks Inc.
- Entercept Security Technologies

E-COMMERCE
- Cyclone Commerce Inc.

DATA MANAGEMENT
- Stratify Inc.
- Software AG

WIRELESS
- Terabeam Corp.

Read more about these companies and see our list of the 10 companies that received honorable mention recognition. **PAGE 26.**

ALSO THIS ISSUE

Vince Tuesday turns detective to find a potential hacker from inside the corporate firewall.
PAGE 38

ROBERT L. MITCHELL

Innovation Is the Object

INNOVATION IS A CONCEPT in danger of being permanently devalued by overuse and relegated to the realm of marketingspeak. As our Innovative Technologies special report in the following pages shows, what IT managers see as innovation has nothing to do with hype. It's all about making their companies run more effectively and efficiently.

And sometimes innovation is based on something as prosaic as a new standard, like the one under consideration right now that could literally become a blockbuster for enterprise storage. The T10 Technical Committee, part of the International Committee on Information Technology Standards, is working on the Object-Based Storage Device Commands (OSD) standard. OSD will turn files, records, directories and other storage elements into objects that storage management software can access using an extended SCSI-3 command set.

Storage managers (think file systems like New Technology File System, or NTFS, and databases like Oracle) need no longer write and manage physical data blocks. That job will move into the SCSI storage device itself, along with the metadata and attributes required for the device to internally manage those stored objects.

MORE ON OSD

Additional info on the storage device standard is online:

QuickLink 32934
www.computerworld.com

What's in it for you? By breaking away those block-level and metadata management chores, OSD reduces the storage manager's job to one of simply mapping files and file structures to objects. That should lead to better interoperability and set the stage for convergence of storage-area network (SAN) and network-attached storage (NAS) technologies. OSD-compliant storage managers will be able to share data on the same device. Theoretically, backups initiated on a Windows file system could even be restored to a Solaris file system (in the unlikely event that both could agree on a common, shared attribute set) because the data and its attributes have been effectively separated from the operating system.

So OSD makes it possible for vendors to create a universal file system (which operating system vendors will surely resist), and brings a cross-platform capability that today's proprietary SANs lack. OSD also logically separates control and management information from the data path, which means applications don't suffer the latency penalties associated with going through an intermediate file system, such as a NAS filer.

OSD essentially combines the direct-write performance of SANs and the cross-platform benefits of NAS. And moving object metadata and attributes out of the file system also allows for more scalable storage, eliminating the file server or NAS filer head as a scalability choke point. The argument over whether to serve up NAS-style files or SAN-style blocks goes away: Object-based storage should drive convergence from the ground up.

Another potential benefit of OSD is its ability to improve data security. Today, disk-level security is limited to crude tools such as LUN masking and zoning. OSD will make this more granular. "Because objects are self-describing, you can ascribe a security domain to each one," says Michael Mesnier, a storage architect at Intel and co-chairman of the Storage Networking Industry Association's OSD Technical Working Group, which developed the specification. With OSD, the user (called an initiator) must present a key to the storage device before it grants access to the requested data. The file system determines the user authorization and key distribution methodology; the OSD-based device enforces it.

While OSD will drive convergence, it won't make the SAN/NAS debate go away anytime soon. That's because the specification doesn't address how data should be transported. Both architectures will continue to evolve as object-based storage emerges, but distinctions between them will blur.

IT isn't likely to see the benefits of object-based storage until a new generation of intelligent (and more expensive) OSD-complaint SCSI drives and file managers appear. That will take time. For example, Microsoft's long-promised object-based file system, code-named Longhorn, will morph NTFS into an object database. But it won't arrive until at least 2006, and its support for OSD is unclear.

Nonetheless, Mesnier predicts a base OSD standard by year's end. Intel is building an open-source reference implementation, which Mesnier says it will release this fall. The question that remains is whether vendors will run with it.

ROBERT L. MITCHELL is *Computerworld*'s technology evaluations editor. Contact him at robert_mitchell@computerworld.com.

First Annual INNOVATIVE TECHNOLOGY AWARDS 2002

HOW WE CHOSE THE WINNERS

During May and June, *Computerworld* invited IT customers – those companies that use technology but don't produce or sell it – to nominate vendors they believe offer leading-edge technology products or services that provide measurable payback. We received approximately 200 nominations. Successful vendor candidates had to be nominated by a customer who was currently using the technology. Customer nominations were verified by *Computerworld* by phone.

Computerworld then surveyed those vendors, asking specific questions about the nominated technology. Those surveys were first vetted by a panel of *Computerworld* editors and then divided among a 15-person panel of IT influencers for evaluation.

Our outside panelists were Michael Agens, systems integration manager at Linens 'n Things Inc.; Jon Carrow, director, global IT sourcing and acquisitions, at Wyeth Pharmaceuticals; Frank A. Guglielmo, vice president, enterprise engineering group, at Soza & Co.; Melanie Heintz, staff director at the Federal Reserve Bank of New York; Frank Hood, vice president of information services at Krispy Kreme Doughnut Corp.; Cathy Hotka, vice president of IT at the National Retail Federation; Barry Kadets, CIO and vice president of information systems at Bacou USA Inc.; Anthony Okrongly, vice president of IT at Galactic Ltd.; Jeff Orton, CIO and vice president of logistics at Wilsons the Leather Experts Inc.; Larry Peterson, vice president of corporate technical services at Gelco Information Network; André Mendes, chief technology integration officer at the Public Broadcasting Service; Priscilla Tate, executive director of the Technology Managers Forum; M. Lewis Temares, vice president/CIO and dean of engineering at the University of Miami; John Voeller, senior vice president and chief technology officer at Black & Veatch Corp.; and Patrick Wise, vice president of e-commerce at Landstar System Inc.

Evaluations were based on the following criteria:

- The company's technology is innovative and original.
- It offers demonstrable value to corporate IT operations in Fortune 1,000 companies.
- It creates a new advantage or opportunity for customers.
- Customers have successfully implemented the technology and are getting measurable payback or competitive advantage from it.
- The technology will continue to change the way companies do business or solve technology problems into the future.

The 10 winners and 10 honorable mentions are presented here.

Top-flight TECHNOLOGY

COMPUTERWORLD INNOVATIVE TECHNOLOGY 2002

Computerworld's customer choice awards honor 10 vendors that offer cutting-edge technology that's creating business value for their customers.

Arbortext Inc.

CATEGORY: Enterprise systems

URL: www.arbortext.com

LOCATION: Ann Arbor, Mich.

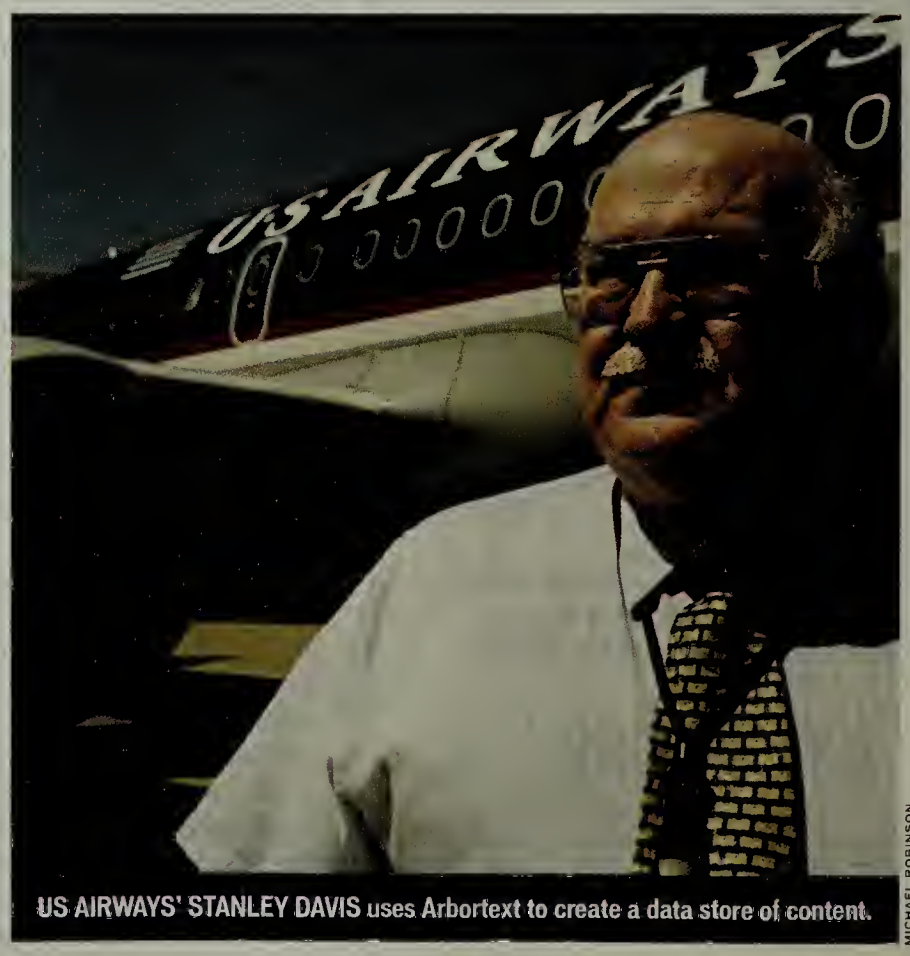
FOUNDED: 1982

TECHNOLOGY: Epic, XML software for publishing content dynamically

KEY CUSTOMERS: American Express Co., Ford Motor Co., The Boeing Co.

HOW IT WORKS: Based on XML and related standards, Arbortext's Epic Editor is used to create information in a media-independent format that can be stored on a file system or in a content management system. Epic creates a single XML-based source of information and automates the publishing to all types of media, including the Web, print, CD-ROM and wireless devices. The software constrains the author so the structure and content of the information conform to the XML data model the system designer specifies. Because of these con-

Continued on page 28



US AIRWAYS' STANLEY DAVIS uses Arbortext to create a data store of content.

MICHAEL ROBINSON

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Canon KNOW HOW™

Continued from page 26

straints, the information is consistent across all platforms. Out of the box, Epic Editor works with file systems and Documentum Inc.'s Documentum 4i. An optional adapter integrates Epic Editor with Oracle Corp.'s 8iFS repository. Also available are integrations with repositories from Empolis GmbH and Xyvision Enterprise Solutions Inc. Epic Editor is compatible with Windows 95, 98, 2000 and NT 4.0, and Solaris 7 and 8.

TIP: "The ultimate success of your implementation depends on your data model, so that's the one area where you must not skimp," says P.G. Bartlett, a spokesman for Arbortext. "Whatever investment you make in outside experience will be returned many times in lower implementation costs and greater rewards."

BY LINDA ROSENCRANCE

Flight delays can be extremely infuriating, for business travelers in particular.

Many of these delays can be traced to aircraft maintenance — the time-consuming task of ensuring that each plane is inspected and repaired before every flight. And it's crucial for mechanics to be able to quickly locate the information they need to make repairs, because the faster they can do their jobs, the faster the planes get back in the air.

US Airways Group Inc., for example, must create, publish and maintain more than 13 different publications that support the maintenance of its entire fleet of 300 aircraft, which handle more than 1,400 flights every day.

Finding the right information used to take US Airways' mechanics as long as 15 minutes using a combination of microfilm and paper documents, says Stanley Davis, manager of electronic publications at the Arlington, Va.-based airline.

To shorten those delays, the airline turned to publishing software from Ann Arbor, Mich.-based Arbortext Inc. to overhaul its documentation production process and convert its manuals from print to an electronic format, says Davis.

Using Epic Editor, Arbortext's XML-based authoring and editing software, US Airways created a central data store of content components that can easily be searched, managed, tracked and improved, Davis explains. Changes that occur in one manual are now easily reflected in other manuals.

"The new documentation process allows users to share information across several different organizations and computer platforms in the most efficient manner," Davis says. "It now takes a mechanic about two or three minutes to find the information he needs."

WHAT'S IN STORE "It's increasingly important for organizations to cut the cost and time of creating, reusing and sharing information while delivering more dynamic content on more types of media," says Michael Maziarka, an analyst at CAP Ventures Inc. in Norwell, Mass. "Arbortext's focus on simplifying the development and usage of such applications represents the next logical step in the evolution of technology in this category."

BioconX Inc.

CATEGORY: Security

URL: www.bioconx.com

LOCATION: Minneapolis

FOUNDED: 1999

TECHNOLOGY: Network security software based on biometric authentication, which replaces passwords with enterprise single sign-on

KEY CUSTOMERS: Antelope Valley Health Care District, DialAmerica Marketing Inc.

HOW IT WORKS: BioconX software identifies users' fingerprints by looking for unique swirls; each unusual spot in the fingerprint is "marked" by the software as a personal characteristic. A user is authenticated when his fingerprint matches a previously scanned series of unique swirl characteristics.

TIP: BioconX Chief Technology Officer Don Harris says the software can accurately identify fingerprints more than 99% of the time. The software works with the user directories of Microsoft Corp. and Novell Inc. network operating systems to authenticate a user; once identified, users gain access to all the applications they're entitled to use.

BY STEVE ALEXANDER

Hospitals facing new government requirements for privacy of patient medical records are looking for better ways to authenticate users of their networks.

Antelope Valley Health Care District, which operates a community hospital and eight medical clinics in Lancaster, Calif., chose fingerprint identification software from BioconX Inc. in Minneapolis.

Ash I. Shehata, director of information systems and telecommunications at Antelope Valley, says the BioconX network security software "was the only application we could find that let us achieve multiple secure log-ons on a single workstation." Maintaining separate security for multiple users on each workstation was important to the 2,000-employee health-care organization because improved computer security and data privacy will be required by the Health Insurance Portability and Accountability Act by April 14, 2003.

Shehata says he found fingerprint identification using mouse readers to be more secure than typed-in passwords and more reliable than token-card electronic password devices. "Users forgot to bring the devices to work. But it's hard to forget to bring your finger," he says.

Equally important, the BioconX user identification approach was affordable. That's partly because mouse fingerprint readers now cost about $120 and partly because the BioconX product doesn't require the modification of source code on the 60 applications to which it provides authentication, Shehata says. The cost per user is $200, which includes the BioconX software, the server on which it runs and the mouse reader from Siemens AG.

WHAT'S IN STORE "Biometrics is a very good method for strong identification and can replace PIN numbers and passwords," says Matthew Kovar, director of security solutions and services at The Yankee Group in Boston. But biometrics adoption has been slow because it's more costly than personal identification numbers and passwords.

In addition, the outlook for biometrics is clouded because it solves only the identification part of the problem of user access control, without addressing authorization and accountability. "Health care providers need to set up good authorization systems before they worry about user authentication," Kovar says. "What holds up biometrics is that authentication is only one part of the cost."

HONORABLE MENTIONS

APPLICATION DEVELOPMENT

ClientSoft Inc.

LOCATION: Miami

URL: www.clientsoft.com

FOUNDED: 1987

TECHNOLOGY: ClientSoft Tanit Objects

KEY CUSTOMER: Penn Mutual Life Insurance Co.

WHAT IT DOES: A development platform and runtime environment for IBM CICS integration that allows users to extend core legacy systems to modern media such as browser-based Internet applications.

Metastorm Inc.

LOCATION: Severna Park, Md.

URL: www.metastorm.com

FOUNDED: 1996

TECHNOLOGY: E-work

KEY CUSTOMERS: City of Bakersfield, Calif., McKenna & Cuneo LLP

WHAT IT DOES: Application integration software that automates people-intensive and paper-based tasks. Flexible, scalable and compatible with legacy systems.

CUSTOMER RELATIONSHIP MANAGEMENT

Astute Inc.

LOCATION: Columbus, Ohio

URL: www.astutesolutions.com

FOUNDED: 1996

TECHNOLOGY: PowerCenter

KEY CUSTOMERS: McDonald's Corp., L'Oreal SA, Levi Strauss & Co.

WHAT IT DOES: Provides a one-to-one consumer response system that integrates customer data and communication channels to improve responsiveness of customer service representatives.

Profiles continue on page 30

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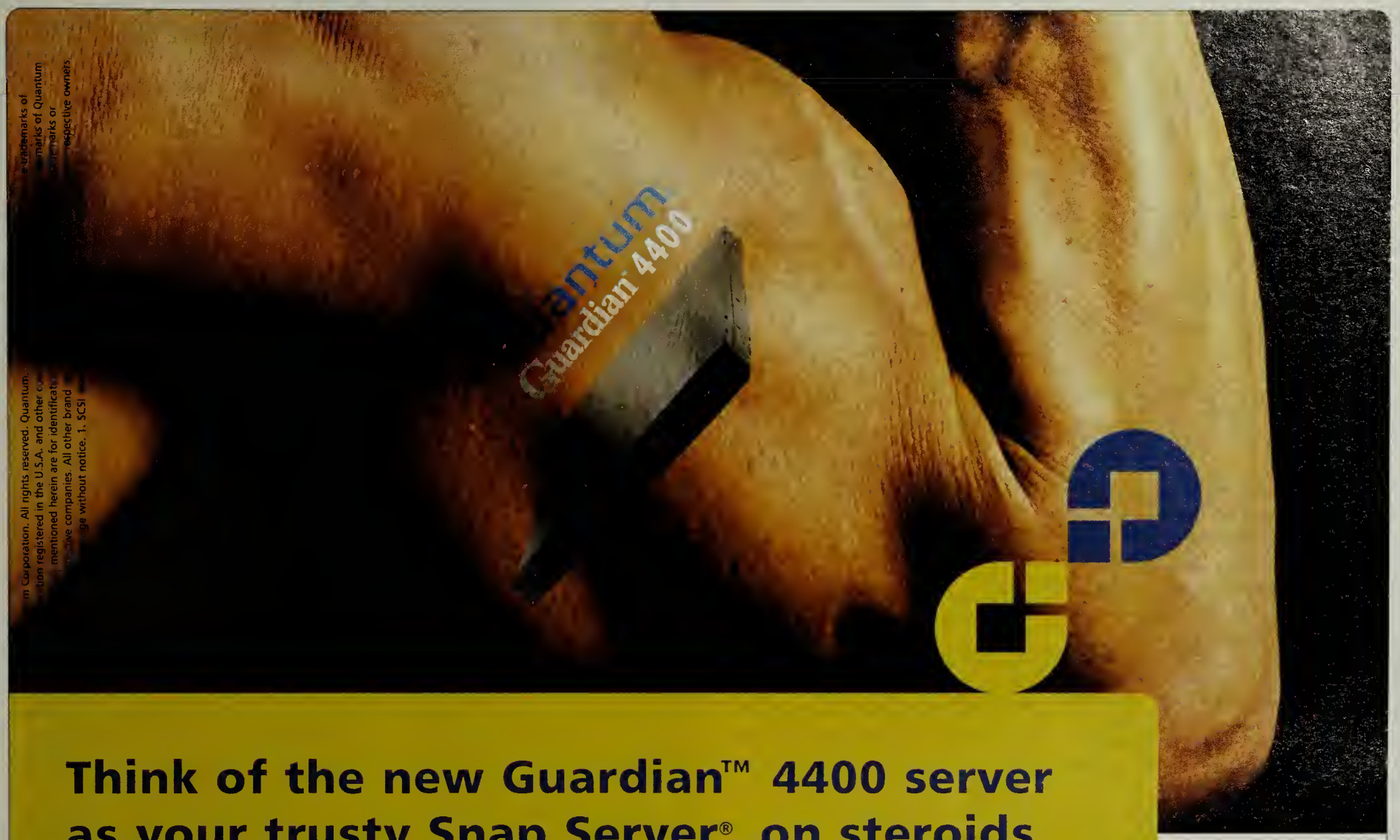

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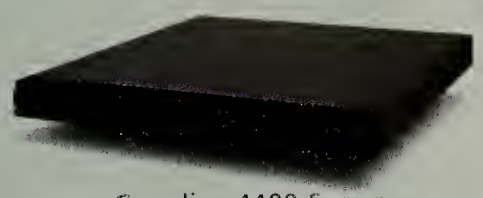
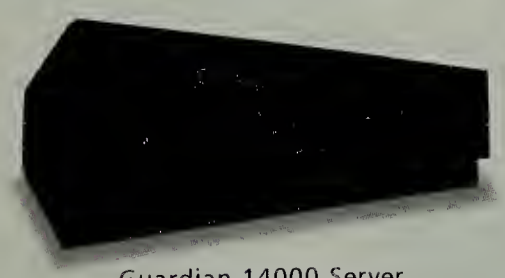


Guardian 4400 Server



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Mazu Networks Inc.

CATEGORY: Security

URL: www.mazunetworks.com

LOCATION: Cambridge, Mass.

FOUNDED: 2000

TECHNOLOGY: Security systems to prevent distributed denial-of-service (DDOS) attacks based on fast packet-processing technology

KEY CUSTOMERS: MTV Networks (operates the MTV, VH-1 and Nickelodeon channels), New York Mercantile Exchange Inc.

HOW IT WORKS: Mazu's Enforcer builds a statistical model of Web site traffic when no attack is occurring, says Carty Castaldi, vice president of engineering at the company. During a DDOS attack, Enforcer identifies data packets associated with the attack based on their statistical differences from the norm and recommends a filter that typically blocks 80% of the attack packets and about 5% of nonattack packets, he says.

TIP: Enforcer is good but not foolproof. It works best when there is no variation in the attacking packets. But some attackers switch the packet types midattack, reducing Enforcer's effectiveness until it can reanalyze the situation and recommend a different filter. The more varied the attack, the less effective Enforcer is.

BY STEVE ALEXANDER

MTV.com, the Web site for the cable TV music channel, is the target of DDOS attacks each fall when the MTV Video Music Awards are televised. But the attacks, in which servers are deliberately overloaded by heavy traffic, are now blunted because New York-based MTV Networks is protecting its 15 entertainment Web sites with Enforcer, a defensive tool from Mazu Networks Inc. in Cambridge, Mass.

"During the MTV Awards and other highly publicized TV events, some folks try to knock us out of the water," says Brian Amirian, director of Web hosting and development at MTV Networks Online Technology. So last year, MTV attached Mazu's Enforcer to gigabit uplinks between the MTV Web sites and the company's Internet service provider.

Amirian says one reason he selected Mazu's product is the efficient way it uses proprietary hardware to filter out DDOS attacks. Some other products that he evaluated but rejected used software that relied on the more limited filtering capabilities of existing network routers.

According to Amirian's calculations, he recouped the $32,000 investment in Enforcer within about two months because the Mazu device kept MTV's Web site from being disrupted during the heavy advertising period surrounding the Video Music Awards. ◗

Alexander is a freelance writer in Edina, Minn. You can contact him at sorion99@yahoo.com.

BRIAN AMIRIAN, director of Web hosting and development at MTV Networks Online Technology, says Mazu's Enforcer protected his site from denial-of-service attacks.

GIORGIO PALMISANO

WHAT'S IN STORE

Eric Hemmendinger, research director for security and privacy at Aberdeen Group Inc. in Boston, says the key to combating DDOS attacks "is to let the traffic that's appropriate come through to your Web site and not let it be choked out by the attack. My impression is that the Mazu product meets this test." Hemmendinger says other security firms are likely to copy Mazu's dual-detection approach: performing deep analysis of individual data packets while also analyzing trends to spot changes in a Web site's traffic.

IBM

CATEGORY: Enterprise systems

URL: www.ibm.com

LOCATION: Armonk, N.Y.

FOUNDED: 1911

TECHNOLOGY: Sametime, the first instant messaging and e-meeting technology built specifically for corporations

KEY CUSTOMERS: Shaw Pittman LLP (a multinational law firm), Ryder System Inc.

HOW IT WORKS: Sametime provides secure real-time instant messaging capabilities for businesses by integrating the software directly into their corporate networks. Systems administrators have full control over who can view corporate information, while also ensuring that only employees can send messages within the system, which differs from free instant messaging software such as Yahoo Inc.'s Messenger.

TIP: Sametime is easy to install but must be specially configured to operate through ports in corporate firewalls.

BY TODD R. WEISS

The old ways of communication just weren't cutting it anymore at the law firm of Beckman & Hirsch PLC.

Using intercoms and internal e-mail systems, the attorneys and staff in the 10-person Burlington, Iowa-based practice were continually having to halt their meetings with clients and other work to talk on the intercom or check for e-mail.

But that's all changed since Beckman & Hirsch deployed IBM's Lotus Sametime, a corporate instant messaging and electronic meeting application that's helping the firm react to messages and information with fewer distractions.

David Beckman, one of the principals at the law firm, says his personal secretary moved to another town, but that hasn't created a ripple in how they work together. "I can do my work and never realize that the secretary handling this is 100 miles away," he says.

When using e-mail or intercoms, employees have to stop and check for messages or react when the intercom sounds. But with Sametime, staff members can quietly and efficiently respond to one another through pop-up messages on their computer screens, even while they're on the phone, increasing their productivity and billable hours.

WHAT'S IN STORE

"[Instant messaging is] definitely becoming infrastructure, but it's what you do with it that gives you bang for the buck. It squeezes out time and waste. Instant messaging is going to become a critical part of that," says Neil McDonald, an analyst at Gartner Inc. in Stamford, Conn. "Sametime is one of the most visible business IM products on the market because of its inclusion in IBM's software offerings."

Also available are collaboration tools such as whiteboards that allow people to work together in real time.

Beckman says Sametime offers major benefits to his business, such as secure communications and encryption — features not found in the free instant messaging applications available on the Internet, including Yahoo Messenger and America Online Inc.'s Instant Messenger. "It isn't just, 'Go on AOL and everybody get in a chat room,' " Beckman says. "Particularly in the legal field, confidentiality is important." ◗

Profiles continue on page 32

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Entercept Security Technologies

CATEGORY: Security

URL: www.entercept.com

LOCATION: Raleigh, N.C.

FOUNDED: 1996

TECHNOLOGY: Entercept, a server security system that uses behavioral rules and signatures to identify anomalous behavior and block attacks in real time

KEY CUSTOMERS: First Citizens Bank, Corio Inc.

HOW IT WORKS: Entercept provides intrusion-detection and prevention software for host and application servers and will soon expand the capability to database servers. The software decides whether to permit a system call inside a server based on the signature of the call or behavior rules. For example, if a hacker were seeking a password file on a Web server, that behavior would be contrary to the normal behavior of someone accessing a Web page and wouldn't be allowed.

TIP: Be aware that host-based intrusion-prevention software must be installed on every server, including the ones IT doesn't know about, and run constantly.

BY MATT HAMBLEN

First Citizens Bank in Raleigh, N.C., implemented an intrusion-detection system from Entercept Security Technologies just in time back in March 2000.

The Code Red worm hit three days after the bank installed Entercept on customer-related Internet-facing servers, and the Nimda virus hit shortly after that, says Jay Ward, senior network security analyst at First Citizens.

"But we kept humming along without skipping a beat, so I'd say yes, that was a definite return on investment," he says. "When the CIO asked me why we weren't hit when some of our peers' internal networks were down for up to three days, I told him it was . . . Entercept."

The product was unique at the time, blocking malicious attacks near the kernel level, Ward says. But analysts say Entercept now faces competitors such as Okena Inc. in Waltham, Mass., and Harris Corp. in Melbourne, Fla.

One big advantage Entercept offered First Citizens is that it gave administrators time to thoroughly test patches and then apply them. Some vendors had told the bank they couldn't support the servers if the patches were installed by bank officials, and First Citizens decided that waiting for the vendors to install the systems would take too long, Ward says.

Because host-based intrusion-prevention software must be installed on every server, it can be very expensive, notes Gartner Inc. analyst John Pescatore. But a $1,595 Entercept Web server provides such good protection that it's worth the price, Ward says.

WHAT'S IN STORE Analysts put Entercept in the category of host-based intrusion-protection software and services, which will soon be offered by big systems management vendors such as Tivoli Software Group, Computer Associates International Inc. and BMC Software Inc. These companies already put agents on servers and can easily add security.

Cyclone Commerce Inc.

CATEGORY: E-commerce

URL: www.cyclonecommerce.com

LOCATION: Scottsdale, Ariz.

FOUNDED: 1996

TECHNOLOGY: Provides secure, profile-based, easy-to-configure Web connections to trading partners

KEY CUSTOMERS: Do It Best Corp., Allegiance Healthcare

HOW IT WORKS: Cyclone's software offers a quick, easy and secure way for companies to connect via the Internet to their trading partners, regardless of their preferences for data type, communication protocols or security infrastructure. The Java-based software relies on a profile-driven interface to run connections to internal applications and other software, to enable traffic to travel back and forth seamlessly.

TIP: Users should be aware of hidden costs. For instance, their partners may not be able to afford to link up using the required client software.

BY MARC L. SONGINI

DAVE BENNETT, CO-FOUNDER AND CTO

Companies looking to automate their supply chain connections are faced with the daunting task of integrating their enterprise resource planning and other related systems with partners. Problem is, those partners often use a wide variety of communications protocols and other technologies, such as electronic data interchange (EDI), frame relay and others. Investing in a private communications linkup can prove extremely expensive and time-consuming.

Enter Cyclone Commerce, which offers software that stores profiles of different partners and their technologies and can route data to the appropriate personnel and applications in a company.

At San Francisco-based McKesson Corp., a health care distribution company, there was a need to manage the large amounts of traffic moving between it and its customers, some of whom were huge retail chains requiring very robust interfaces. Each time a new customer was added, McKesson had to hand-code a new interface.

Paul Fowler, vice president of e-business solutions at McKesson, says that two years ago, the firm installed Cyclone's Central product. "It is essentially a connector that allows us to quickly configure connectivity to other people's financial systems and orders. We consider it a data switch," says Fowler.

McKesson can now add partners on the fly, without the time and expense of hand-coding, he adds.

WHAT'S IN STORE The market for software to automate connections between trading partners is in transition, says Jon DeRome, an analyst at The Yankee Group in Boston. For decades, partners communicated primarily via EDI. Now, with the advent of the Web, XML and other related technologies, there are more avenues available that let companies to do more types of collaboration. Cyclone not only helps enable this, but it also provides an audit trail – if one partner sends another a purchase order, there is a record of it, says DeRome.

HONORABLE MENTIONS

DATA MANAGEMENT

eXcelon Corp.

LOCATION: Burlington, Mass.

URL: www.exceloncorp.com

FOUNDED: 2001

TECHNOLOGY: XIS

KEY CUSTOMERS: Amazon.com Inc., NTT DoCoMo

WHAT IT DOES: An XML database management system that solves integration problems for enterprise-grade applications.

NETWORKING

Fortinet Inc.

LOCATION: Santa Clara, Calif.

URL: www.fortinet.com

FOUNDED: 2000

TECHNOLOGY: Fortigate network protection gateways

KEY CUSTOMER: Agile Software Corp.

WHAT IT DOES: Protects against network-borne threats. Supports network-based deployment of application-level services.

Foundry Networks Inc.

LOCATION: San Jose

URL: www.foundrynetworks.com

FOUNDED: 1996

TECHNOLOGY: 10-Gigabit Ethernet 802.3ae

KEY CUSTOMER: University of Southern California

WHAT IT DOES: Delivers 10-Gigabit services to connect backbone switches/routers, simplifying network connectivity.

SECURITY

Ultra-Scan Corp.

LOCATION: Amherst, N.Y.

URL: www.ultra-scan.com

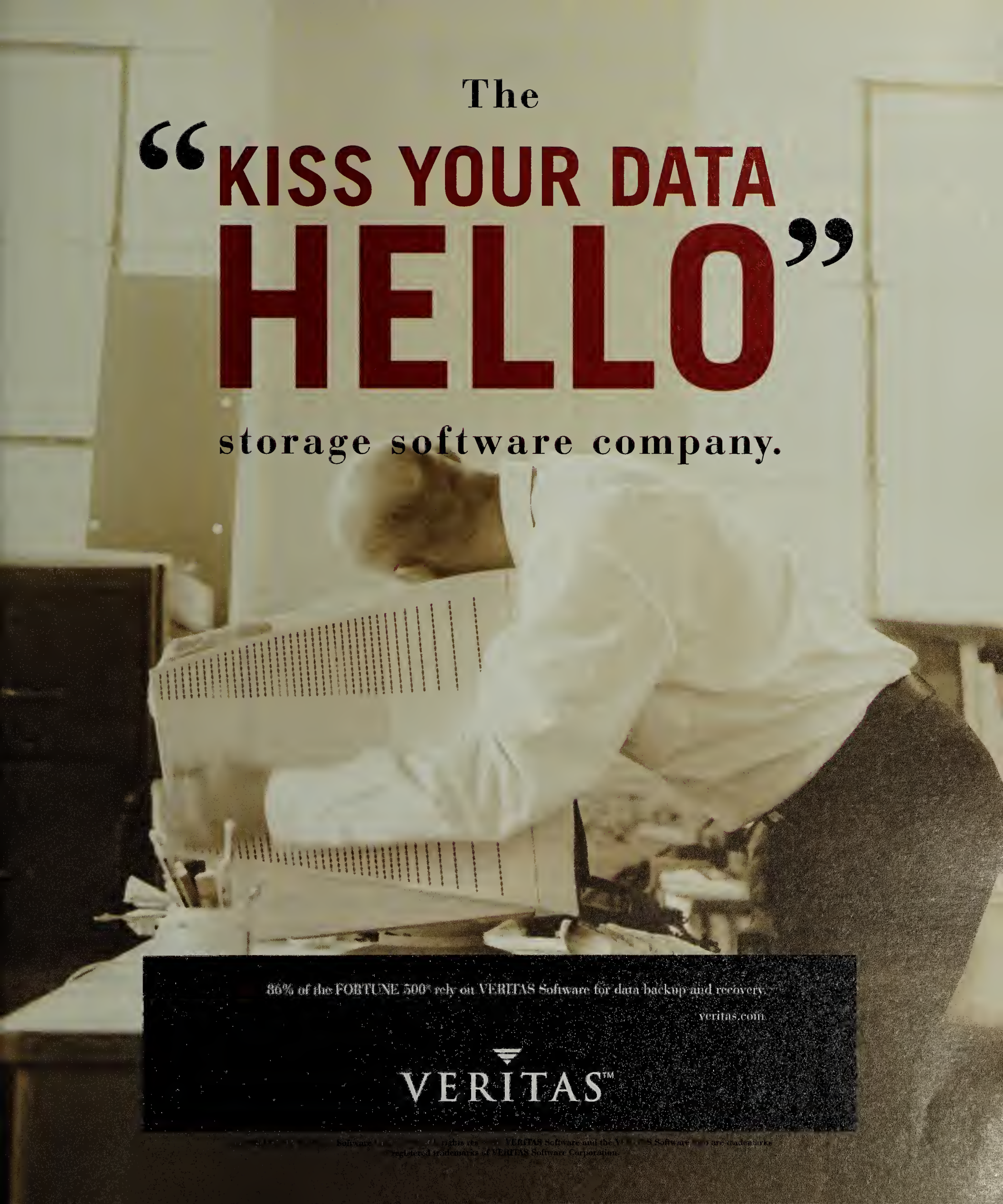
FOUNDED: 1986

TECHNOLOGY: Ultrasonic fingerprint identification system

KEY CUSTOMER: ATESA, a Chilean HMO consortium

WHAT IT DOES: Checks fingerprints against a database.

Profiles continue on page 34



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Stratify Inc.

CATEGORY: Data management

URL: www.stratify.com

LOCATION: Mountain View, Calif.

FOUNDED: 1999

TECHNOLOGY: Stratify Discovery System, software that automates the organization and classification of unstructured data

KEY CUSTOMERS: Bell Canada, U.S. Department of Education

HOW IT WORKS: Stratify's software will comb through the millions of documents in an enterprise, look at patterns in the words, sort them into various groups, and allow a company to create a portal that could be similar to Yahoo Inc.'s search structure, with data presented in hierarchical fashion, as well as provide tools to extract data. It can also tie in relevant data from the Internet. Says Chief Technology Officer Ramana Venkata, "Knowledge is power. If you don't know what you got, you don't have it – you don't have power."

TIP: Stratify's system has the ability to reach deep into a system, including a user's e-mails. End users need to address access policy issues.

BY PATRICK THIBODEAU

The hundreds, or perhaps many thousands, of e-mail messages, Web pages, documents, PowerPoint presentations and other text files stored on your laptop hard drive are called unstructured data. They're not filed well, and keyword searches are often frustrating.

Now imagine that same problem across an enterprise, with millions of text documents, the accumulated knowledge of your company, stored in thousands of servers. It's a much bigger mess.

One company that's dealing with large volumes of similarly unstructured data is NewsEdge Corp. in Burlington, Mass., a content provider for business Web sites. It turned to knowledge management company Stratify Inc. to help it process the tens of thousands of news stories, press releases and other material that it receives daily.

NewsEdge's problem is ensuring it catches everything. Editors read stories, look for new trends and technologies and write system rules to catch future references. The data is then put in the appropriate category or taxonomy. But with so much information flowing in "it just quickly gets out of hand," says Steve Samler, architect of content.

NewsEdge picked Stratify because it wanted a system that had the ability to learn, discover new topics, write rules and incorporate those findings in NewsEdge's own taxonomy. And unlike some other knowledge management vendors that wanted to completely automate the system, Stratify's system was flexible enough to ensure human intervention. There's no substitute for human judgment, says Samler. ◗

WHAT'S IN STORE This is a market in its beginning stages, but interest is growing. In-Q-Tel, a venture fund backed by the CIA, has invested in Stratify. One appealing feature of Stratify is that it doesn't rely on any one technology but will use pattern recognition, language analysis and systems that look at how words and patterns differ, says Bill Lange, an analyst at Delphi Group in Boston. "Enterprise organizations know they have a problem, but they don't know how to go about solving it," he says.

Terabeam Corp.

CATEGORY: Wireless

URL: www.terabeam.com

LOCATION: Kirkland, Wash.

FOUNDED: 1997

TECHNOLOGY: Fiberless optics, which beam the same light used in fiber optic cables through the air – straight through office windows

KEY CUSTOMERS: Overlake Hospital Medical Center, Fisher Communications (TV and radio stations)

HOW IT WORKS: Terabeam's Free Space Optical Technology uses lasers operating at 1,550 nanometers, far above visible light, eliminating the possibility of eye damage caused by other lasers. It uses computer-controlled steering mirrors to ensure tight beams. Its range is about 800 feet to three miles depending on the weather. The company offers two models: Elliptica, which has a throughput of 155M bit/sec., and Magna, which has throughput of 1G bit/sec.

TIP: Free space optical communications systems don't have the security holes found in wireless bridges, but users should be aware that they work best in locations with little rain or fog, which can cut throughput or completely block a signal.

BY BOB BREWIN

Running a high-end hotel in a technology hub such as Seattle requires giving road warriors more than just a room. Visitors to nearby Microsoft Corp. and other high-tech companies such as RealNetworks Inc. expect high-bandwidth Internet connections.

Satisfying the wideband thirst of a guest population that varies from day to day in a hotel with more than 400 rooms is a challenge, but one that the Elliott Grand Hyatt Hotel in downtown Seattle has met with a flexible bandwidth service from Terabeam, says the hotel's general manager, Doug Sears.

If Sears anticipates greater than normal demand for high-bandwidth connection to guest rooms or the hotel's auditorium — which has each of its 160 seats equipped with an Ethernet jack — all he has to do is order up more bandwidth from Terabeam. Terabeam, which manufactures free-space optical systems and also serves as a local carrier in Seattle, has mounted a dish on the hotel's roof, which uses free space optical telecommunications technology to hook into the hub of a major telecommunications carrier about 800 feet from the hotel.

Lou Gellos, a Terabeam spokesman, declines to identify the carrier, but did say the arrangement allows Terabeam to boost the Elliot Grand's capacity at a flick of a switch from 5 to 100 megabits. That's important, Sears says, when a large number of guests check in expecting high-speed connections at the same time, such as during a RealNetworks conference earlier this year.

Gellos says Terabeam's free space optic technology (fiber without the wires) makes tying a hotel into a high-speed hub easy, since it doesn't require digging up the street. Installing a dish on the roof does the job. ◗

WHAT'S IN STORE While free space optic technology has emerged as an alternative to unlicensed wireless radio systems, Bettina Tratz-Ryan, an analyst at Gartner Inc. in Stamford, Conn., views it as a niche technology. "That's because range is limited and rain or fog can cause degradation in performance," she says. However, despite Seattle's notorious weather, Doug Sears, manager of the Elliott Grand Hyatt, says he hasn't experienced any outages.

HONORABLE MENTIONS

Waveset Technologies Inc.

LOCATION: Austin, Texas

URL: www.waveset.com

FOUNDED: 2000

TECHNOLOGY: Waveset Lighthouse

KEY CUSTOMERS: GMAC Financial Services, the American Red Cross, Burlington Northern Santa Fe Railway Corp.

WHAT IT DOES: Automates security provisioning of business information systems across enterprise, intranet and extranet environments.

SUPPLY CHAIN/ERP

Formation Systems Inc.

LOCATION: Southboro, Mass.

URL: www.formationsystems.com

FOUNDED: 1995

TECHNOLOGY: Optiva

KEY CUSTOMERS: The Coca-Cola Co., Mrs. Smith's Bakeries LLC

WHAT IT DOES: Collaboration software automates product development and commercialization, reducing the time and resources required to take a product from idea through product launch.

WIRELESS

Air2Web Inc.

LOCATION: Atlanta

URL: www.air2web.com

FOUNDED: 1999

TECHNOLOGY: Mobile Internet Platform, a wireless application gateway

KEY CUSTOMERS: ADC Telecommunications Inc., United Parcel Service Inc.

WHAT IT DOES: Extends corporate data, back-end information systems, e-mail and Web site content to mobile users.

Profiles continue on page 36

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MetraTech Corp.

CATEGORY: Enterprise systems

URL: www.metratech.com

LOCATION: Waltham, Mass.

FOUNDED: 1998

TECHNOLOGY: MetraNet, a Web services-based billing system that uses XML technology

KEY CUSTOMERS: BCE (subsidiary of Bell Canada), British Telecom Conferencing

HOW IT WORKS: The MetraNet billing platform enables communications service providers to dynamically offer new services and package existing services in new ways. Customers can integrate the system with their existing infrastructure and third-party applications and provide pricing, revenue sharing and billing capabilities using XML and plug-and-play Web services.

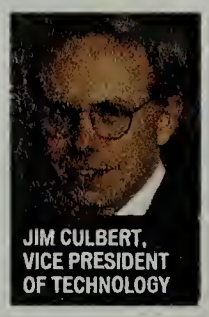
TIP: According to Jim Culbert, vice president of technology at MetraTech, there are some standard requirements for the system, like processor level. "When we engage with a customer, we have a fairly detailed set of business process we go through," says Culbert. "We first figure out what they're doing from a business perspective."

BY THOMAS HOFFMAN

ACT Teleconferencing Inc. is a prime example of how MetraTech Corp.'s MetraNet Web-based billing and revenue sharing system is helping companies solve business problems and cut costs.

In late 1999, the Golden, Colo.-based provider of audio, video, data and Internet conferencing products and services began building a homegrown billing system to help it support its 20 domestic and international call centers, many of which had been picked up through acquisitions. Problem was, these call centers ran disparate billing systems that weren't well integrated. ACT executives decided at the time to go with a "build vs. buy" approach to creating a single, standardized billing system because there didn't appear to be any third-party billing systems on the market that could meet its needs and support multiple languages.

Teleconferencing and videoconferencing "is a difficult business to build" because billing isn't simply a matter of multiplying minutes times price. It involves a combination of tiered services purchased, such as having a "live" operator on a conference call or a Web stream attached to a conference, says ACT Chief Technology Officer Mark Kelly, who works out of the company's Ottawa office.


JIM CULBERT, VICE PRESIDENT OF TECHNOLOGY

Enter MetraTech. After a MetraTech representative contacted ACT about its MetraNet system, the conferencing services provider quickly saw the benefits that the XML-driven billing system could deliver.

Since installing the MetraNet system, ACT has been able to shrink its billing cycles from 30 days to one day and receive payments from customers 20 to 40 days faster than before. In addition, ACT has saved "a couple of million dollars a year" through improved billing accuracy, eliminating rebilling and having a smaller support staff to maintain a single billing system, says Kelly. He estimates that the MetraNet system paid for itself in 18 to 24 months.

"If it typically takes 45 to 60 days to render invoices, then you're essentially funding customers for that time and impacting your cash flow," says Kelly. "The more you compress and shrink that billing cycle, the [more] free cash you generate."

"We recommend that customers have a good understanding of how XML fits into their overall IT strategy, say in document management or in B2B supply chain areas," says MetraTech's Jim Culbert. "If the customer isn't up to speed on that, we have a professional services arm that helps out as well." ◗

WHAT'S IN STORE

Compared to other billing platforms, MetraNet "is really advanced for the time," thanks to its ability to help customers "see" a breakdown on their charges, says Daniel Longfield, an industry analyst at Frost & Sullivan in San Antonio.

In the future, the online bill payment industry "is going to be enormous and is going to revolutionize the business," says Longfield, who expects to see the market blossom over the next 18 to 24 months.

Software AG

CATEGORY: Data management

URL: www.softwareag.com

LOCATION: Reston, Va.

FOUNDED: 1969

TECHNOLOGY: Tamino XML Server, an XML server for Internet database management. Processes XML documents natively

KEY CUSTOMERS: DaimlerChrysler AG, Virginia Polytechnic Institute and State University

HOW IT WORKS: Tamino XML Server makes storing, processing and retrieving XML data easier and faster compared with traditional relational database management systems where XML data has to be modified and reconstructed every time it is stored or retrieved. "Tamino is high-performance native XML server for storing and publishing XML document in support of e-business applications," says Karen Deda, a product manager at Software AG.

GARY VOIGHT, CEO AND PRESIDENT, SOFTWARE AG INC.

TIP: As with any database, modeling your data to represent relationships among elements is a key aspect of the planning process.

BY JAIKUMAR VIJAYAN

As a company focused on specialized distribution and logistics services, NorthAmerican Logistics has been a longtime user of electronic data interchange (EDI) for exchanging different types of data between its networks and those of its customers and supply chain partners.

But all that is starting to change. Under increased pressure from some of its high-technology customers and in a bid to reduce the traditional value-added network (VAN) translator costs that are associated with EDI, NorthAmerican Logistics has recently started using XML for its business-to-business data exchange.

This Web-based approach aligns NorthAmerican Logistics' capabilities more closely with those of its partners, says CIO Ann M. Harten. And it offers the logistics provider, which is a service of Fort Wayne, Ind.-based North American Van Lines Inc., a relatively easier way to exchange different types of data than EDI does, while making the data exchange process faster and more efficient.

The company won't completely abandon EDI anytime soon. But in each of the next three years, Harten says she expects that NorthAmerican Logistics will move at least 10% of its EDI traffic over to XML. The goal, she says, is to eliminate at least $40,000, or 13%, from the $300,000 the company spends currently on VAN costs each year.

Playing a central role in this transformation is Tamino XML Server, a native XML database from Software AG. The database allows NorthAmerican Logistics to store and process XML documents natively without any transformation.

In traditional relational database management systems, XML data has to be modified and reconstructed each time it's stored or retrieved, according to Software AG's Karen Deda. Tamino XML Server makes that process faster.

This makes it a good technology for applications where reliable and fast exchange of XML data is important, she says.

Tamino was first out of the blocks and is the current market leader, but vendors like Ixia Soft Inc. and NeoCore offer similar products. ◗

WHAT'S IN STORE

Going forward, expect such native XML databases to become more common as the use of XML to represent all kinds of data spreads, says Ron Schmelzer, an analyst at Zapthink LLC, an XML consultancy in Waltham, Mass. XML databases are better than traditional ones at preserving XML hierarchies, says Schmelzer.

For example, a document can be stored as a document instead of being shoehorned into rows and columns, Schmelzer says.

Tamino was the first to market and remains on top. But a number of other vendors, including IxiaSoft Inc. and Neocore Inc., offer similar products.

In the future, expect to see vendors of traditional relational database management products, such as Oracle Corp., ship native XML databases as well, he says.

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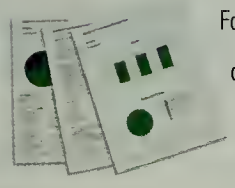

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Attack on Feds: It Came From Within

Who is running port scans of federal intelligence computers from the corporate LAN? A system alert leads to a wake-up call – and some anxious moments. By Vince Tuesday

SECURITY MANAGER'S JOURNAL

MY SECURITY TEAM was recently asked to help reduce costs by consolidating after-hours security and IT support services. We had been charging a nightly fee for round-the-clock on-call support, but the company reasons that it's cheaper to consolidate all first-line support to the on-call IT team that supports our applications.

I trained the on-call team, covering the most common problems and what to do if there's a situation they can't handle. My security team now offers second-line support.

The alerting system is well tuned, and we don't get many after-hours alarms, so I doubted we'd be called often. I was wrong.

At 3 a.m. on the first night the IT team took over, I received a call from a rather worried on-call guy who had been paged with an "ISS" alert. He didn't know that ISS just stands for Internet Security Systems Inc., the Atlanta-based vendor of our intrusion-detection software.

One of the many things we can detect is probes sent from ISS's Internet Scanner software. The scanner lets administrators check their networks for vulnerabilities, but attackers can also misuse it to map our networks and identify weaknesses. ISS tries to prevent this by using a complicated licensing process that limits the IP addresses each tool can attack. It also sends some special packets at the beginning of each scan, including the license key, the user name, and the host and domain of the scanning machine. That way, if someone uses the tool to scan a network they don't own, the product will announce who they are.

We monitor for these packets in case somebody finds a way, using network address translation perhaps, to trick the scanner into thinking it's probing a local machine when in fact it's scanning us.

More worrisome is that, as with other digital rights management systems, hackers claim to have broken ISS's license key system. In fact, key-generation software can be found on the Web to make keys for any network.

The fake license keys these tools generate typically have an ID of 1234. So even if the special packets contain the hacked ID, you have very little to go on. We could also expect the attacker's IP address to be faked.

The normal response to an ISS alert, we told the new support team, is to trace down the source of the attack via the America Registry for Internet Numbers (ARIN) Web site at *www.arin.net* and notify the attacker's Internet service provider. We even have standard forms for those submissions. We don't really expect the ISP to do anything, but at least we try.

> **We had detected an attack against the DIA, the heart of the U.S. intelligence services, that came from our own network.**

Internal Attack

But the detail that worried the front-line support chap, and that made me snap awake at that awful hour, was the source of the attack: It came from within our own network.

Maybe someone we'd hired was a bit of a hacker. Or maybe the system had it wrong and the attacker was actually the target.

I asked the support technician for the target address of the probes. It was the IP address 11.1.1.3, which seemed rather odd. The address range 10.x.x.x is reserved so companies can use it internally, as we do. So perhaps this was a typo? Who was 11.x.x.x? After a quick check of ARIN, my blood ran cold. The results read:

> DOD Intel Information Systems (NET-DODIIS)
> Defense Intelligence Agency
> Washington, D.C.

We had detected an attack against the DIA, the heart of the U.S. intelligence services, that came from our own network — and I doubted that we were the only people to spot this. No doubt somewhere in Washington someone was also being woken to respond.

Whoops. We had to work out what was going on before men in trench coats and dark glasses arrived. I took control of the call and began searching for the internal machine.

I traced the machine to one of our Unix server clusters. It seemed to be the one running our enterprise monitoring system (EMS). That didn't make sense — ISS stopped making Unix versions of Internet Scanner a long time ago. If a hacker could get hold of a license generator, why would he make keys for an old version? The Unix version of Internet Scanner was five years old, so the problems it might look for would have been fixed by now, making it useless.

The Mix-up

Then a few pieces fell into place. The EMS pings every interface on every router we have to make sure each is responding correctly, and the ISS special packets use the same protocol as ping. Perhaps there had been some kind of mix-up? Could the EMS, by chance, have sent an ISS alarm packet?

I woke the network team and got them to check the configuration. Aha! We were monitoring the 11.1.1.3 address. It seems someone had mistyped what should have been a 10.x.x.x address.

So our EMS was accidentally trying to manage the DIA's network devices. But was it also the unwitting host of a hacked version of Internet Scanner? We could find no evidence of any such tools on the machine. It seemed much more likely that the "attack" was just an odd packet. But with no record of the packet from our intrusion-detection system, we faced a choice: We could either ask the DIA if they had a copy, or we could keep our heads down.

We're keeping our heads down. I've updated the firewall to block any attempts for the EMS to talk outward, and hopefully that's the end of it. That is, unless the feds come knocking.

WHAT DO YOU THINK?

This week's journal is written by a real security manager, "Vince Tuesday," whose name and employer have been disguised for obvious reasons. Contact him at vince.tuesday@hushmail.com, or join the discussion in our forum:

QuickLink a1590

To find a complete archive of our Security Manager's Journals, go online to **computerworld.com/secjournal**

SECURITY LOG

SMS Authentication

RSA Security Inc. in Bedford, Mass., has announced RSA Mobile, software that provides one-time access codes at the time of log-in to mobile devices via Short Messaging Service (SMS). By entering a user ID and a personal identification number followed by the access code, users can access the desired Web applications. The two-way authentication system is meant to provide secure remote access while lowering administrative costs and making use of existing mobile devices.

Security Pays

Average annual compensation, by security job title:

SOURCE SURVEY OF 1,245 SECURITY EXECUTIVES, Q1 2002, FOOTE PARTNERS LLC, NEW CANAAN, CONN.

Bracing for Bluetooth

Because much of the Bluetooth wireless security model is optional, network executives should start setting policies for handling the short-range radio technology, according to new research from Gartner Inc. Gartner's recommendations include the following:

- **Require link-level security to be active in all Bluetooth devices.**
- **Use application-level security: Point-to-Point Tunneling Protocol, Secure Sockets Layer or a virtual private network.**
- **Make employees aware of the risks, encourage good user security practices, and configure devices properly.**
- **Evaluate a product's user interface to decide how easily it lets users set up and manage security.**

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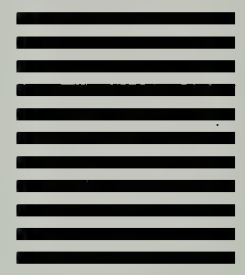

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35 Years of IT Leadership

On September 30th, Computerworld celebrates 35 years of reporting on the Information Technology evolution by showcasing the people, projects and companies that have shaped the industry.

In the issue, Computerworld will laud 35 innovative technologies and applications that have impacted business practices since 1967 and celebrate the greatest technology successes of the past three decades. In addition, Computerworld will talk with the IT movers and shakers about where IT is headed as the industry continues to evolve.

This collectors edition issue will also feature a multipage timeline to guide readers and Web site visitors through significant technology events from 1967 to 2002. The timeline will document key dates and developments in the IT industry, from the early stages of the technology revolution to the latest in cutting-edge innovations.

Join us next week for a stroll through history and look forward, with us, toward history to be made.

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OCTOBER 22-24, 2002

Never has the need for security been so great. Never has it been so hard for management to understand the requirements and allocate the necessary resources to safeguard the organization. This symposium aims to bring technology experts and managers together to mutually explore the issues and best approaches to protect the information and physical assets of the organization.

Highlights include:

- A day tutorial providing an overview of security technologies
- A presentation of the OCTAVE security risk assessment approach developed recently by researchers at the CERT Coordination Center of Carnegie Mellon's Software Engineering Institute (SEI).
- A White Paper by the Information Civil Defense Task Force (ICDTF) a nation-wide group of CIO's that was formed in the wake of September 11 to ensure that business is better able to cope with internal and external security threats.
- A panel of Chief Security Officers will discuss security issues in the financial services industry.
- Exhibits by leading security vendors.

KEYNOTE SPEAKERS

SALLIE MCDONALD
is Assistant Commissioner for the Office of Information Assurance and Critical Infrastructure Protection in the Federal Technology Service in the General Services Administration (GSA).

YALKIN DEMIRKAYA
has fifteen years of law enforcement experience as a detective as well as a detective squad commander. He is the founder and currently the Commanding Officer of the Computer Crimes Investigation Unit of one of the largest law enforcement organizations in the world.

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THIS WEEK

WHY SWITCH TO LINUX?

Linux may be free, but that's not what makes it cost-effective, say experienced users of the operating system. Faster processing, smoother scalability and streamlined administration and systems maintenance are among the advantages. **PAGE 42**

SINGING FOR THEMSELVES

IT prima donnas are arrogant. They lack social skills, and they suck up untold hours of management time. But master the right techniques for managing these talented technical professionals, and they may become some of your best employees. **PAGE 46**

ANGST-FREE FEEDBACK

Shelving the pass/fail approach to performance reviews and feedback sessions can yield positive results, but it takes forethought and practice, says Jean-Francois Manzoni (above), a professor of management featured in this month's *Harvard Business Review*. **PAGE 48**

WORKSTYLES

After the separation from Hoechst, Celanese AG is working to centralize IT and keep the culture lively and informal. **PAGE 50**

CAREER ADVISER

Fran Quittel counsels a telecommunications systems engineer and a veteran Unix systems administrator. **PAGE 50**

ERIC GOLDFARB/PEER TO PEERS

Answer the Call

WE'VE ALL HEARD THE COME-ONS. "Hello! This is easy money." Right. No CIO or IT manager can afford to sit waiting for profitability to call. We are living in an extended recession contaminated with the likes of Enron, Arthur Andersen and WorldCom. The wake-up call we need to hear and heed is "Adapt or fail."

Companies' survival and recovery depends on adjusting to the ever-changing business environment. Unfortunately, the harsh reality of today's marketplace is that as companies struggle with declining sales and profits and bloated costs, IT and other employees will continue to be laid off. Others will find themselves in dead-end jobs. Loyalty, seniority and entitlement are employment precepts from the past that no longer apply. IT employees in particular need to find ways to make themselves continually more valuable, thereby making their companies more productive, efficient and profitable.

Despite the sluggish economy and job market, the future of worldwide business isn't hopeless to those workers who evolve with the times. The message is clear: Upgrade your skills and stay flexible. Be willing to take on tasks and tackle goals outside of your day-to-day job. If you're an applications programmer, consider a new development area. If you're a LAN administrator and your group needs help with Web applications, learn the appropriate new skills and apply them. What's needed is for every person in IT to grab a shovel and start digging.

Companies that survive this downturn can't afford to retain the employee who deletes or ignores this critical message. For those who listen, here are some specific ways to increase your own effectiveness and enhance your value to your company, its profits and productivity:

■ Take off your blinders. Overcome denial and self-deception about the invincibility of your career or your company. You need to see clearly where your company is going and how IT fits into its business strategy. If your company is putting a lot of time into cash management, look for ways to enhance systems to provide tighter financial control and better forecasting. If the focus is on improving the customer experience, look for ways to apply IT to that goal. The bottom line is that IT and business must be aligned.

■ Determine the scope of your company's business, its IT needs and how your IT department is mapping to those requirements. Only then can you determine how IT can and should fit in. Don't try to be all things to all customers. Resources are scarce. Set reasonable goals and expectations for problems, and solve what you can within the IT budget.

■ Restructure and renegotiate contracts to reduce financial and performance drags on the IT department. Closely review service agreements with outsourcers. Determine what is wasteful or overkill. Could you live with 98% vs. 99.9% uptime for an application?

■ Get a handle on cash management. Pull the plug on any IT activity that is losing money or not making it.

■ Commit to your role. Although the workforce has shrunk, your task hasn't; your company will continue to expect more from you. I, for one, have been asked to take on operational and financial functions that don't fit the traditional CIO job description.

■ Abide by the golden rule. Given the recent accounting scandals, each of us could use a reminder of its value. In any business, it's all about trust, and when trust is breached, profit suffers.

■ Satisfy your customers, and document the results. Customer/user satisfaction is a key source of job security. If you're on the help desk, publicize positive results and find what the help desk can do to improve more.

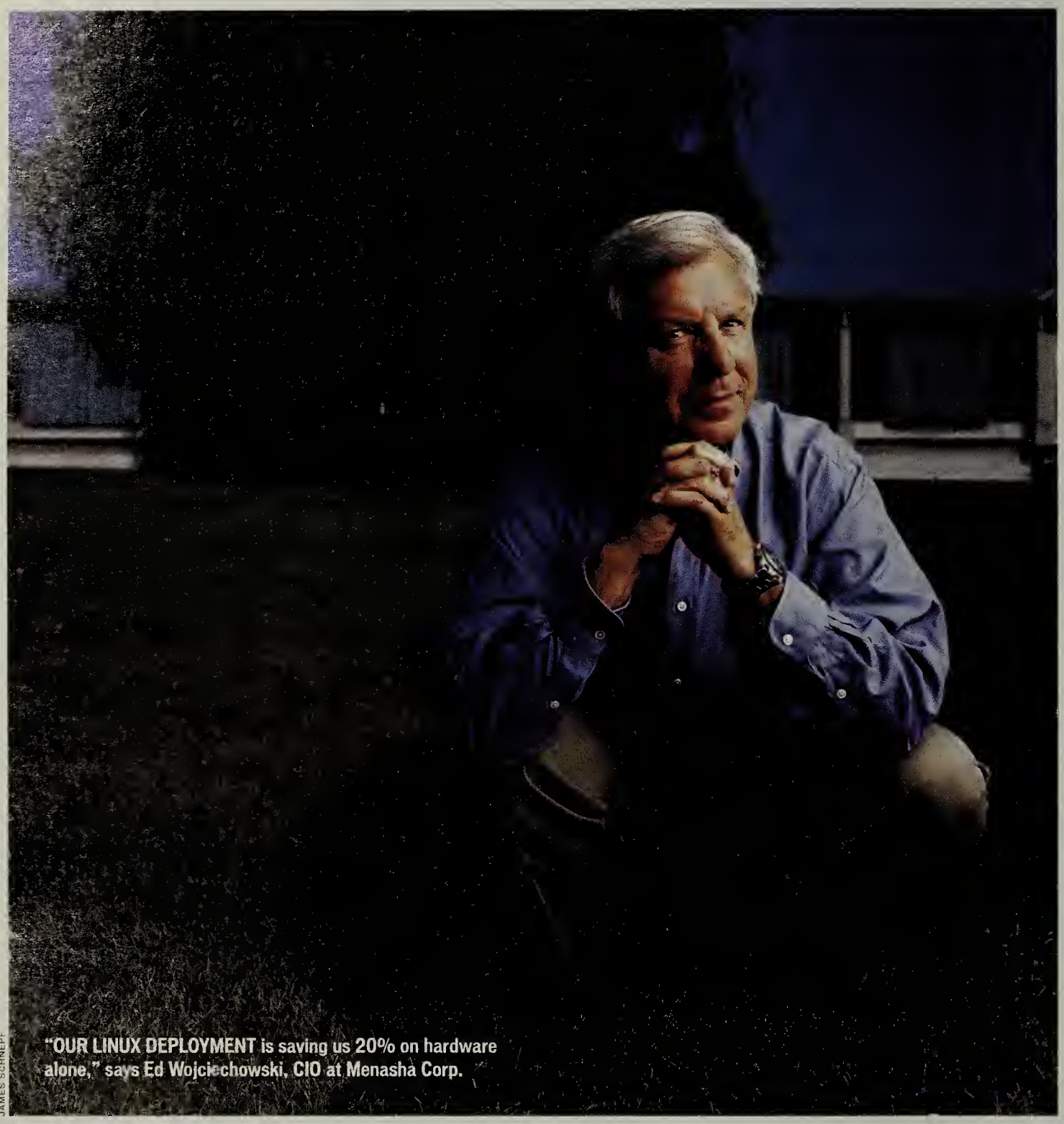
■ Contribute more to your company than it costs to employ you. Working hard and doing good work aren't enough; you get an A for expanding your skills.

It's all about increasing the value you bring to an organization. Since your expertise is your ticket to success, take responsibility for continuing your education and increasing your knowledge. Invest in yourself. Don't expect your company to pay for training as it may have once done. You are in charge of your career.

Ongoing improvement is the one commonality that surfaces when studying corporations that have emerged successfully through multiple business cycles. Companies that invest in training come out ahead. In a study of more than 3,100 U.S. workplaces, the National Center on the Educational Quality of the Workforce found that on average, a 10% increase in the workforce education level led to an 8.6% gain in total productivity. On the other hand, a 10% increase in new equipment spending improved productivity by only 3.4%.

Put stock in yourself, and never stop developing skills that will enhance the value you bring to your business. That value, if greater than your cost, will keep you employed and marketable. The result will be a company that emerges as a long-term winner. ◗

ERIC GOLDFARB is CIO at Global Knowledge, a provider of IT education training and certification programs.



JAMES SCHNEPF

"OUR LINUX DEPLOYMENT is saving us 20% on hardware alone," says Ed Wojciechowski, CIO at Menasha Corp.

It's power, speed and simplicity that drive Linux ROI.

By Connie Winkler

FREE MAY BE ONE of technology managers' favorite words, but it typically figures minimally — if at all — into ROI calculations for switching to the Linux operating system. Many companies that have made the switch to Linux rank its zero price tag as relatively low on their lists of key ROI factors. Instead, what counts most are:

- Reduced hardware costs — by as much as 90% in some cases.
- Faster processing and smoother scalability, which translate to ever-faster online responses and easier computing upgrades to support new or more customers and applications.
- Streamlined administration and systems maintenance, which work to lower labor costs, usually by about one-third.
- A flexible, lean-and-mean technology infrastructure that ensures the company will be competitive in the future.

ROI

Continued on page 44

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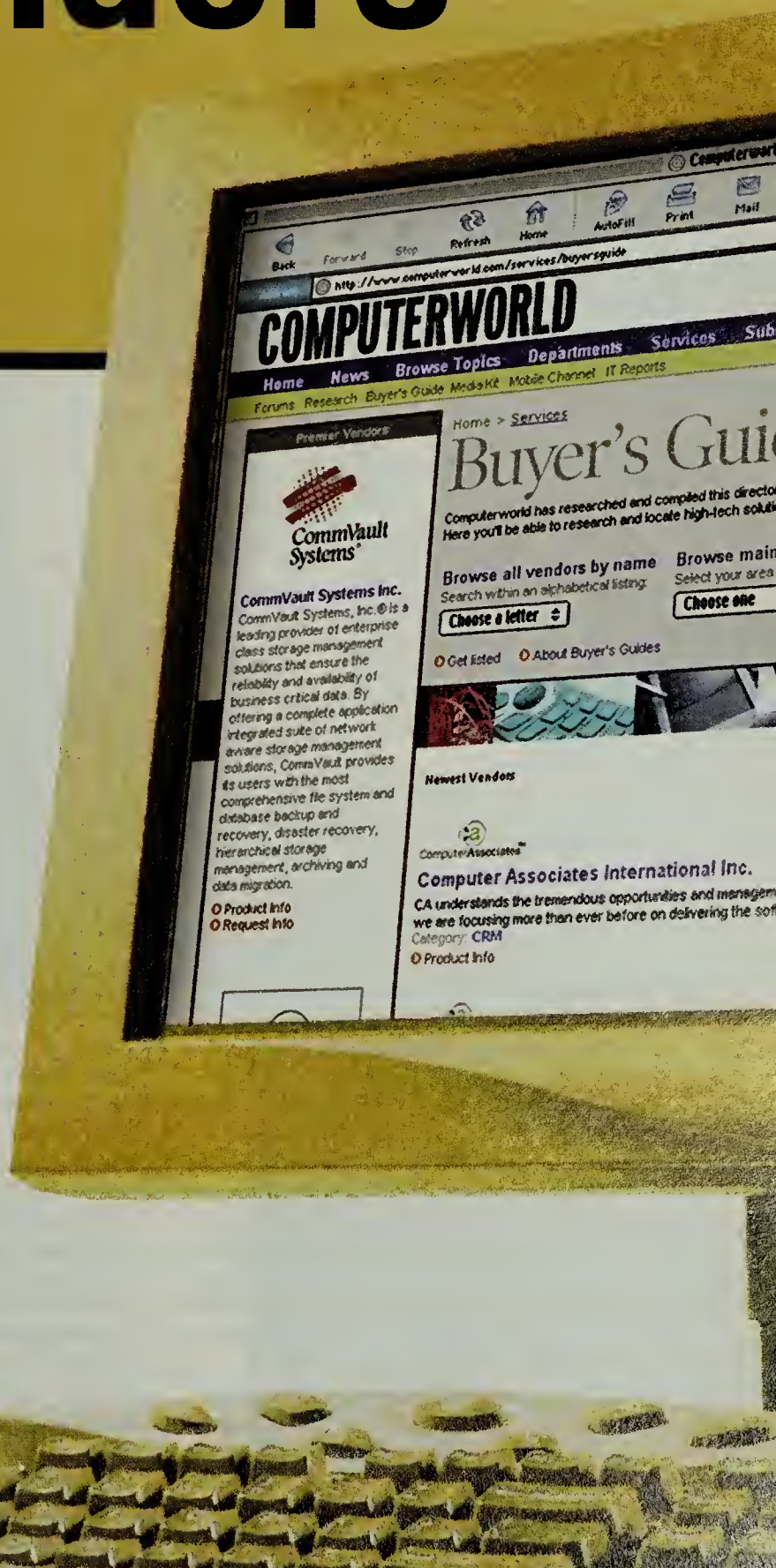

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Continued from page 42

"Everyone says Linux is a free operating system and that's why you're making the choice, but that isn't the primary driver," insists Brad H. Friedman, vice president of information systems at Burlington Coat Factory Warehouse Corp. in Burlington, N.J. The real advantage is the much lower cost of Intel hardware on which Linux and its applications can run efficiently — and cheaply, he says. Burlington, a longtime Unix user, is currently installing its second Linux system.

Chicago-based Orbitz Inc. is also sold on the cost savings and enhanced processing power and speed afforded by the Linux/Intel combination. This month, the transaction-intensive online travel reservation company is going a step further with Linux by replacing its 50 Sun Microsystems Inc. Java application servers running Solaris software. These heavy-lifting systems feed the company's 700 Web servers — already running Linux — which dish up the screens customers interact with when they make airline, hotel and vacation reservations online.

This summer, Orbitz benchmarked several vendors' latest hardware systems, including Linux on commodity Intel boxes, and the results were compelling.

"To maintain the same capacity in terms of the number of users on our site, we were able to move [from the Java servers] to the commodity [Intel systems] for about one-tenth the cost," says Roger Liew, vice president of technology development.

"We also increased the speed in moving into a more efficient hardware and software environment," adds Liew, referring to the faster response times of the Intel environment. Sun's latest hardware also delivered the higher speed, he says, but the scalability wasn't as great. With Linux, in contrast, doubling the number of Linux boxes doubles the system capacity.

As for the Web servers, Liew especially appreciates Linux's ease of maintenance, which requires a single administrator for the 700 machines. "Everything is automated. It's probably one of the most reliable aspects of our system," he says. Increasing system capacity is as simple as taking the Intel/Linux servers out of the box, putting them onto racks, powering them up, and running start-up scripts, Liew says.

A Linux Leap of Faith

For Neenah, Wis.-based Menasha Corp., a $1 billion packaging company, moving its SAP AG software applications from a mix of Unisys Corp. and Hewlett-Packard Co. systems to 115 Linux-based Dell Computer Corp. servers was a leap of faith.

"We didn't know it [in 2001], but we know it now," says Ed Wojciechowski, Menasha's CIO and president of Menasha Advantage, an in-house, for-profit IT company set up to provide enterprise resource planning applications to the firm's five packaging subsidiaries. "We projected cost savings in the 5% to 10% range. As we look now, our Linux deployment is saving us 20% on hardware alone."

He says he has found another 5% in soft cost savings associated with ongoing operations, such as not having to support a bloated software product that had unused features and required complex maintenance. Previously, Menasha's bundled proprietary operating system software had lots of capabilities that the company didn't use but still had to support to keep the software running and to comply with vendors' requirements.

ROI has also come from the 240 Web portals the firm launched in 2000. They enable customers such as food makers and consumer product manufacturers to work tightly with Menasha in the tricky collaborative packaging-design process. "We're getting about 2% in additional sales, or $20 million, through our [package design] e-commerce business," notes Wojciechowski, whose IT staff totals 115 people. "Today, if you hold your own, you are actually gaining market share."

But for Menasha, and for other Linux users, the operating system is about more than dollars. Wojciechowski emphasizes what he calls the agility of Dell's Linux/Intel architecture. Menasha now buys highly specific software, as opposed to big, proprietary bundles. On the hardware front, the agility enables Menasha to expand its server farm incrementally, application by application, or on a volume-by-volume basis. "We bought what we needed, which we felt was a great way to manage our infrastructure," says Wojciechowski.

MAKE MINE A MAINFRAME

Read how Linux on big iron can cut costs and reduce administration headaches:

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Burlington Coat Factory recently switched its PC-based in-store management system to Linux, resulting in a 20% ROI improvement compared with running Microsoft Windows licenses on the five PCs in each of the national retailer's 350 stores. "To administer that many [Windows] PCs would be a gargantuan task," says Friedman. "With Linux, the administration is minimized."

Now the discount retailer is replacing 4,500 to 5,000 in-store point-of-sale terminals from NCR Corp. with ones from Austin, Texas-based Wincor Nixdorf Inc. that run Linux applications from Raleigh, N.C.-based Red Hat Inc. On both hardware and software, Burlington expects 20% to 25% savings. And the decision to replace the terminals was as much about the NCR gear being 15 years old as it was about the advantages of Linux, says Friedman.

Virtually all the Linux users interviewed said they value Linux as a path to the future and not just for the open technology itself.

In Pasadena, Calif., Parsons Corp., a large engineering and construction firm with $2.5 billion in revenue and 10,000 Windows PCs, is evaluating moving its approximately 300 servers running 1,000 different applications to Linux or Unix by late 2004, when its contract with Microsoft Corp. expires.

And what about on the desktop? Right now that's a tough decision, because those 10,000 PCs worldwide are running complex engineering applications. But it will be a no-brainer in a couple of years, predicts CIO John Thomas.

"We think by 2004, there's not going to be a lot of choice out there," says Thomas, adding that by then, the strong ROI generated by Linux on Intel systems will be common knowledge, making it the obvious and most compelling technology option for the future. ◗

Winkler, a former Computerworld *New York bureau chief, writes in Seattle about the management of technology. Contact her at cwinkler@drizzle.com.*

MISSING PIECES

The Linux operating system is not without its downside. Here are a few factors to consider before making a switch.

1.

For many business and engineering applications, Linux software just doesn't exist. Burlington Coat Factory, for example, is still waiting for a capable word processing application that more closely matches Microsoft Word. And Parsons has found very little Linux-ready engineering software to handle its complex, distributed engineering requirements.

2.

Because it's only about 10 years old, Linux is still unfamiliar to many IT professionals. Some companies are cross-training their employees on Linux.

3.

The lean and sleek design of the Linux operating system makes it better suited to some tasks than others. Internet/intranet/extranet systems, Web servers and high-volume systems, such as those used in financial services and Hollywood filmmaking, shine on Linux.

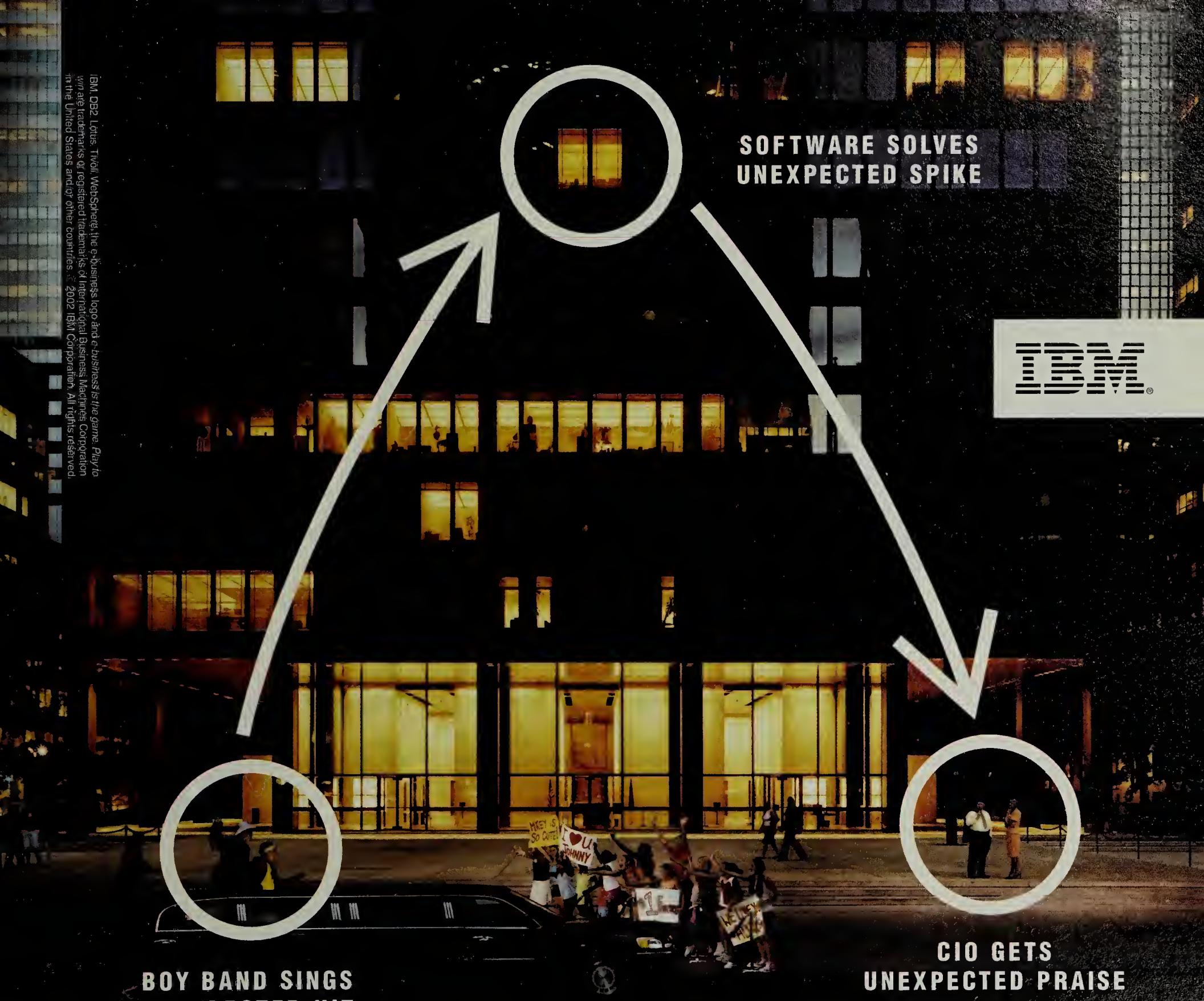
4.

As Linux becomes increasingly popular with large companies, there's concern over the operating system splintering into multiple incompatible versions, which occurred with Unix during the 1980s.

5.

The fact that Linux is fed and maintained by volunteer programmers around the world – the open-source community – scares some IT departments. One vendor famously labeled it a "bathtub of code" with too many cooks.

– Connie Winkler



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SINGING FOR THEMSELVES

How to tone down IT prima donnas to enhance staff harmony and productivity.

BY ALAN S. HOROWITZ

FRANKLIN HAMMOND

WHILE IT'S NOT UNUSUAL for an employee to think some customers are stupid, few say so to customers directly. But Vivek Wadhwa, CEO of Relativity Technologies Inc. in Cary, N.C., has twice had to apologize during the past few years to customers who have endured developers calling them "stupid" right to their face.

What kind of employees would do that? IT prima donnas. They're smart, they're skilled, they're opinionated, they're arrogant. And, yes, they're frequently even right. But are they really worth the management headaches and morale problems they can cause?

Greg Walton, CIO of Carilion Health System, a $658 million Roanoke, Va.-based health care company, defines prima donnas as "big brains" with stronger intellects and stronger egos than other workers. "They tend to operate on a different plane, see problems differently, see solutions differently," he says, adding that those qualities make such employees worthwhile.

But treating prima donnas like other employees is a mistake, notes Walton. Instead, he says, master the techniques for managing them, and they may become some of your best employees.

Gene Bedell, CEO of Engenia Software Inc., a management software company in Reston, Va., tells the story of a brilliant technical person who couldn't get along with people, said whatever was on his mind, and didn't suffer fools gladly. "We cleared the ground around him," says Bedell, referring to limiting the employee's interactions with others. "We wouldn't let him manage anyone. We told others to give him some slack. And we gave him a lot of coaching."

Eventually, this prima donna learned how to be a team player and was made a manager. Bedell was able to benefit from the prima donna's technical abilities, while the employee worked on his social skills.

Garrett Granger, CIO at pencil manufacturer Dixon Ticonderoga Co. in Heathrow, Fla., gives the following advice for managing IT prima donnas:

- Give them the personal attention and feedback they demand and require.
- Be diplomatic. Prima donnas often react quickly — and negatively — to criticism, which they take as an affront to their abilities. Granger is direct when giving criticism but takes the edge off by saying, "Don't take this wrong, but . . ."
- Steer them in the right direction. Prima donnas are prone to going off on tangents because they think they have the better solution. Granger addresses this by putting them on projects that require teamwork. "When they have to work on common things, it slows down the prima donna's ability to branch off on tangents [and] tempers their arrogance," he says.

Giving the prima donna more of your personal time, seeking his advice on IT projects and issues and letting him in on future projects earlier than others also help to fill the prima donna's need for special treatment, says Walton. But don't single him out too much, or you risk alienating others on the team, he cautions. Still, a little special treatment goes a long way.

Prima donnas frequently cause morale problems by belittling others. Dan Bent, CIO at Benefit Systems Inc., a third-party Indianapolis-based administrator of employee benefits, stifles this by pointing out to the prima donna that it's other workers who do many of the repetitive tasks the prima donna would never want to do. Bent says he works with the prima donna so long as the benefits outweigh the negatives. He says he cuts the cord "when the behavior offsets the person's effectiveness — when they're more trouble than they're worth."

Wadhwa says he fences off prima donnas and "puts them in their own world." They're worth doing this for because they are so good at what they do. But that's assuming the worker fits Wadhwa's definition of the prima donna who's a genius.

There are plenty of IT managers, though, who say prima donnas are so disruptive that no amount of talent can compensate for the problems they cause and the disproportionate amount of management time they require. "I would sacrifice someone who was enormously talented if they continue to be a prima donna," says Tom Lewis, chairman and CEO of Salt Lake City-based Campus Pipeline Inc., which provides technology services to colleges and universities.

The image of a man who claimed he could produce better software code than anyone on the team is still vivid after 25 years to Jon Dell'Antonia, CIO at children's clothing manufacturer OshKosh B'Gosh Inc. in Oshkosh, Wis. Recalls Dell'Antonia, "The guy was an incredible talent, [but] he was such a disruptive force. He would berate others. We had to let him go."

The bottom-line question for managers is how to know when to let a prima donna go. The answer: When the employee is costing you more than he is delivering, managers say. You can see this in terms of lost team morale and antagonized customers, or when projects go off course and cost more or take longer than they should. All are sure signs that it's time to cut the cord. ◗

Horowitz is a freelance business and technology writer in Salt Lake City.

WORTH YOUR WHILE?

The following are a few factors to consider when dealing with a prima donna:

NOT ALL PRIMA DONNAS ARE THE SAME.
Some have annoying personalities but remarkable technical abilities, while others go off on their own and provide minimal benefit to the organization.

HOW HIGH IS YOUR OWN TOLERANCE LEVEL?
As a manager, do high-maintenance employees bother you or provide you with a desirable challenge?

WHAT'S YOUR ORGANIZATION'S CULTURE?
A company with a button-down corporate culture will have more difficulty benefiting from a prima donna than a company with a more freewheeling culture.

WHEN ENOUGH IS ENOUGH

Go online for the sure signs it's time to cut the cord on your IT prima donna:

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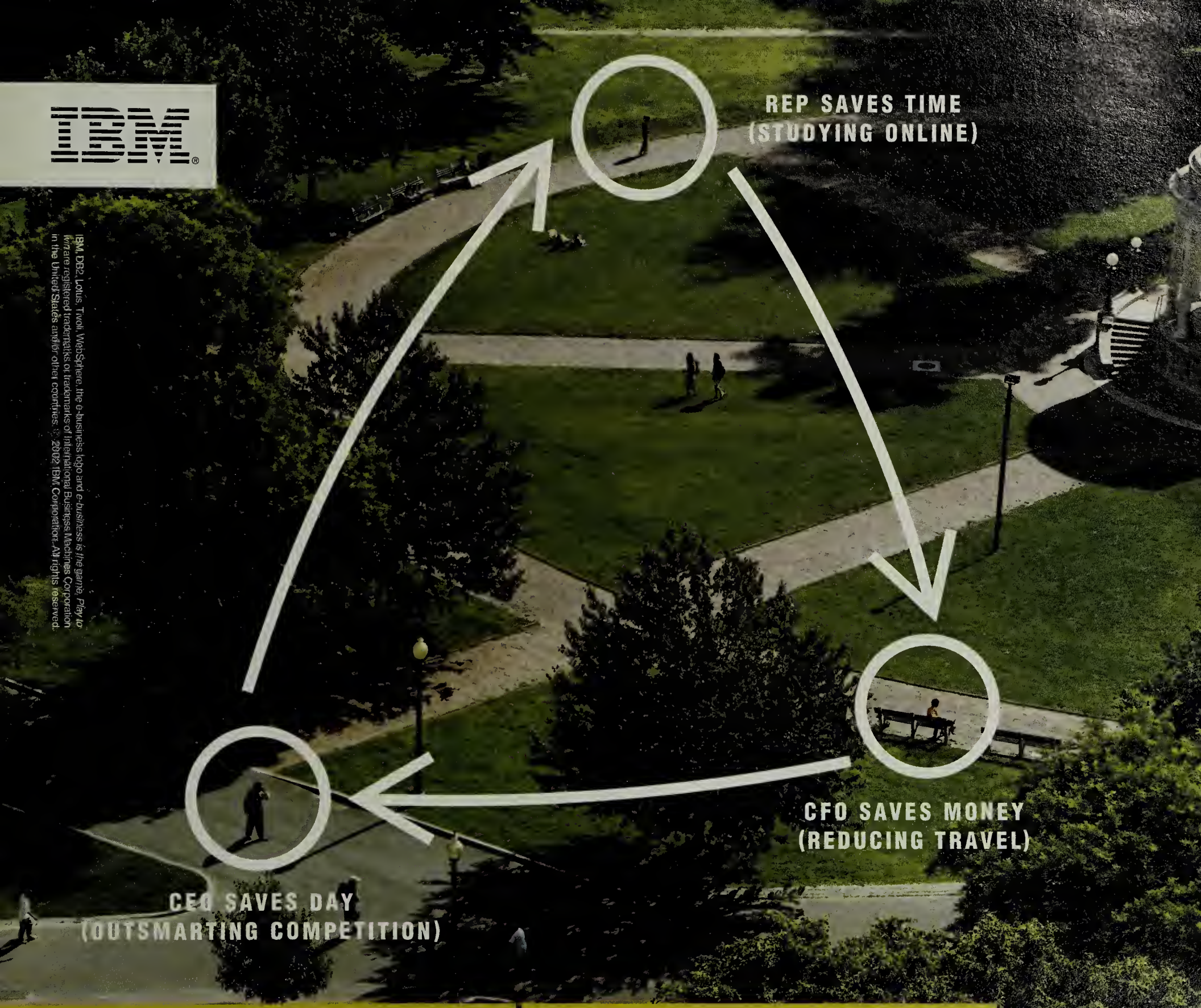

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Angst-Free Feedback For IT Managers

How to take the sting out of giving bad news

Managers hate to give negative feedback, and many defeat the purpose of a feedback discussion with employees by setting up a confrontation. So says **Jean-Francois Manzoni** *in the September issue of the* Harvard Business Review. *Manzoni, the associate professor of management at Insead in Fontainebleau, France, and the director of the Insead-PwC Research Initiative on High-Performance Organizations, says taking a different approach to giving feedback can make those discussions — and your employees — more productive. He discussed his ideas with Kathleen Melymuka.*

This is the latest in a series of monthly discussions with authors of articles in the HARVARD BUSINESS REVIEW on topics of interest to IT managers.

What is the most common mistake IT managers make in giving corrective feedback to their employees? IT managers' problem with feedback starts with the way they frame — mentally construct — the situation. Feedback is something that bosses have and subordinates get. The implicit complement is that this feedback is right, of course.

How might this play out? "Bill's performance is not up to my expectations. I know why: Bill has the following shortcomings/skill or character deficiency. I want to tell Bill about this, but he may not like hearing what I have to say. He may be hurt, and he may try to hurt me in return. Also, if Bill refuses the feedback and pushes back on me, things may escalate and worsen the current situation. So I hope Bill will accept the feedback and spare us an unpleasant moment."

What's wrong with this approach? This framing is narrow because it excludes some potentially interesting issues and questions such as: Am I right? What's the evidence on which my assessment is based? Could I be missing part of the picture? How much is it really about Bill, vs. about the situation Bill is operating in? And what about me? Could I be contributing to the situation, and if so, how?

In addition to being narrow, this framing is binary in that there are only two possible outcomes: The session is a success if Bill accepts the feedback; otherwise, it's a failure.

Why is this mistake particularly likely to happen in an IT environment? IT environments present three characteristics that make it particularly hard for bosses to approach feedback productively. First, the success of IT projects tends to be very dependent on the actions of many parties outside IT, particularly IT users. When looking at results, it is hence difficult to untangle the exact contribution of the IT staff from the impact of the conditions they were operating in. Second, IT is often a bad-news-driven environment. Most of the feedback IT receives from the organization tends to be negative. Last, several aspects of IT involve work that is intangible and largely invisible until completion. Assessing progress intelligently is difficult.

> Several aspects of IT involve work that is intangible and largely invisible until completion. Assessing progress intelligently is difficult.

You say the situation worsens if the framing remains frozen during the discussion. What does that mean? Bosses rarely revise their position during the encounter, even when the subordinate brings up potentially relevant information. That lack of flexibility prevents a more effective handling of the situation and can lead to an escalation in tone and/or content of the discussion.

Why don't IT managers just revise their restrictive framing midstream, when they see it isn't working? First, they are not conscious that they framed the encounter in a narrow and binary way. It's hard to consciously revise a mental construction that we don't know we have. Second, the more intense the discussion, the more energies are diverted to keeping oneself and the discussion under control, and the smaller the bandwidth available to process fully the information we receive.

ACCORDING TO Jean-Francois Manzoni, "IT managers' problem with feedback starts with the way they frame – mentally construct – the situation."

There's a different approach you call "easing in." What's that? Easing in is an attempt to avoid a collision with the other party. So rather than telling you what I have in mind, I am going to ask you a series of questions which, if you answer them correctly, will lead you to the "right" conclusion — [the one] I have already made. A typical easing-in question is: "Don't you think that. . . ?" It really means: "I think this way, and I really hope you'll agree."

You say easing in is a gamble that often doesn't pay off. Why? Easing in is successful only when the subordinate gives you the "right" answers and does not realize he is being manipulated.

How does easing in go wrong? If the subordinate fails to give the "right" answers, the boss must either fold and try again later, or else make his point more explicit. And the subordinate [may] realize somewhere along the way that this is not really a discussion: He is being led carefully to a prepackaged conclusion. Most people don't like feeling manipulated.

So aside from failing to achieve their purpose, these approaches can damage relationships? The frontal delivery of [negative or corrective] feedback often leads to escalations, resulting in one or both parties saying things they didn't really want to say, and/or in one or both parties giving up and pretending to agree. The easing-in approach can lead to an escalation if the subordinate does not "play along," and it can lead to the subordinate pretending to comply if he realizes the boss has already made up her mind. None of these outcomes is very constructive.

What are the conditions that make critical feedback more acceptable to employees? Research suggests that feedback receivers are more likely to accept and act on feedback when they feel that the feedback source has good intentions toward him/her; developed the feedback fairly, which includes collecting all relevant information, allowing the receiver to provide clarifications/explanations and applying consistent standards; and communicated the feedback fairly by showing openness toward and support for the receiver.

Can you give me an example of the right and wrong way to open a feedback discussion? Bosses should approach feedback with a mental framing along the following lines: "I am not happy with Bill's present performance, nor with our relationship. I think I understand where Bill's problems are coming from. But I could be wrong. Bill probably feels the malaise and wants this job and our relationship to work at least as much as I do. So we both want the same thing but somehow we're not getting it right. Let's sit down and discuss why this is the case and how I can help."

This framing is not binary — there's no clear pass/fail criterion. It is broad and, hence, flexible. It is a good basis for a real discussion. If you think this way, the words will come out right. ◗

Melymuka is a Computerworld *contributing writer in Duxbury, Mass. Contact her at kmelymuka@earthlink.net.*

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I'm a senior systems engineer in the telecom industry with a background in C++ and Network Exchange looking for a new home, and I'm wondering whether to stay in telecom or switch out since the current opportunities are rather slim. I'm running out of places to look.

— Telecom Wonder

Dear Wonder:

Check out advanced networking at *www.internet2.edu*, which describes the efforts of industry and, particularly, education moving toward new standards.

"Organizations are very interested in expanding the capabilities of their networks to include real-time television-quality videoconferencing, enabling true multisite collaboration," says Greg Wood, director of communications at Washington-based Internet2, a consortium led by 200 universities in partnership with industry and government that develops advanced network applications and technology.

Just like some 10 to 15 years ago when the National Science Foundation helped figure out how to use TCP/IP networking on a grand scale, today's academic and research worlds are attracting many of those who left for private industry jobs but now want to work on new and interesting uses of high-performance networking across global environments. Check out the institutions and companies listed at Internet2 and the job postings at *www.educause.edu*.

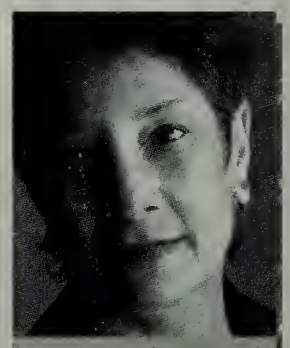
Dear Career Adviser:

I'm a Unix systems administrator with some 20 years of experience. But I want to be in the strongest possible position to keep my current job — and prepare in case I am laid off. My employer is a small company that doesn't pay for education, and my budget and time are slim. Any ideas?

— KEEPING UP

Dear Up:

Often, keeping a job or getting a new one depends on your ability to show that you have kept up technically and have the initiative to learn. You can download tool kits and work on development efforts at home. Take on extra projects at work beyond the usual scope of your assignments. Find out more about the most visible projects at your company and start adding the skills for those projects, even if you aren't currently working on them.



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WORKSTYLES

Centralizing IT In a Lively Way

What are the most critical systems supported by your department? "Hoechst was a mixture of all sorts of things: 60% pharmaceuticals and 40% other stuff. Celanese now has 'the other stuff,' which includes the compound that goes into paint and vinyl siding, the cellulose acetate that goes into yarn and men's suit linings, the sweetener that goes into [some diet sodas] and the foils for things like M&M's.

"From the '90s, Hoechst said, 'You're on your own, and you have to be profitable.' So we are now bringing all our different companies together under one operating company. As a result, we have several initiatives called 'One,' such as One Celanese, One SAP.

"From an IT point of view, we also had five independent IT organizations. We've put in shared services for our infrastructure, and we have a governance group that does architecture and project management. The One SAP project intends to consolidate the many SAP systems we have. . . . After that is done, we will be at 80% centralized."

How would you describe the pace of the work? "We work more than 40 hours a week, but people come here to get things done. Nobody looks at the clock and says, 'I have to leave at 5.'

"This is a lively company."

What makes it lively? "When we were Hoechst, we were something like a $30 billion company, and now that we're a $5 billion company, we understand our behavior has to change. In the past, we were like a slow-moving elephant; now we want to be the dancing elephant. People have understood that we have to get things done ourselves because no one else will do it for us. There's a sense of ownership."

How would you describe the company culture? "It's a very international company. We have a culture that's a mixture of European, U.S., Asian and Mexican. If you look at the management levels, it's a variety from different nations. Many people speak multiple languages."

How would you describe the IT culture? "It's informal. Management holds town hall meetings, and our board travels around to give presentations and really invite questions and get questions. They are trying to forge an environment where people can speak up and drive things."

What do you like best about how career advancement and training are handled? "We've identified high-potential people who get special treatment and are supposed to be our future leaders. They get sent around the world and throughout the company, to IT or logistics or finance. They are required to take with them an understanding of all the problems and issues and opportunities of these functions."

What aspect of work do you look forward to each day? "The connection with people and different cultures. I travel quite a bit, to Germany, Dallas and once in a while in Asia. That is still very interesting."

– Mary Brandel
brandels@attbi.com

Celanese AG

Interviewee: Karl Wachs, CIO

Type of business: A chemical manufacturer, with 30 production sites in 11 countries. The company was founded in 1999 as a result of the separation from Hoechst AG.

Main location: Kronberg, Germany

Number of IT employees: 180 internal staff and 150 contractors worldwide

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Database Analyst wanted in Houston, TX. Respond to: HR Dept., GNT Int'l, Inc., 10333 Harwin Dr., Ste. 297, Houston, TX 77036.

APPLICATION SYSTEM ANALYST/PROGRAMMER wanted by Petrochemical engineering & construction co. in Houston, TX. Must have degree & exp. Respond by resume only to: Ms. Sharon Balke, Sr. H.R. Specialist, N/C #10, ABB Lummus Global, Inc. 3010 Briarpark, Houston, TX 77042.

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LEE Marketing Services, Inc. a national leader in direct marketing has positions available in our Information Systems Department for a Programmer. BS Degree or equivalent plus 1 year relevant work experience, Work with 2 of the following: SQL Server, Visual FoxPro, VB & Unix. Responsibilities include design, implement and support software applications utilizing various marketing software.

Systems Administrator wanted by Garments Manufacturer in Jersey City, NJ. Must have Associate Degree in any field and 5 yrs exp. Respond to: Seoul Suits and Coats, Inc., 1072 Westside Ave., Jersey City, NJ 07306.

Java Developer/Software Engineer sought by telecommunications service co in Cherry Hill, NJ, to support multiple applications across various platforms involving BEA Weblogic, SilverStream, and Oracle 9iAS using JSP, Servlets, JDBC and EJB. Must have Bach. in Comp. Sci., Engg. or equiv. and min. of two years relevant exp. Respond to: HR Dept., Zone Telecom, Inc., 200 Lake Drive East, Suite 200, Cherry Hill, NJ 08002.

BUSINESS SOFTWARE ENGINEER wanted by Architectural firm in Houston, TX. Must have M.S. in MIS or Comp. Sc. plus exp. Respond by resume only to: Mr. C.C. Lee STOA Golemon Bolullo Architects 6213 Skyline Dr., Houston, TX 77057.

Distance Learning Facilitator. Design & maintain tech ops for college internet courses off'd 24 hrs/day. Provide tech support & train'g. Devel s/ware, DBs, & systems. Work is 8-5 but varies due to diff'g time zones & on-call assgnmnts. Bachelor degree in CS or Eng'g req'd, as is 2 yrs exp in job offered or web-based sys admin position.
Competitive salary. Will accept masters degree in req'd fieid in lieu of 2 yrs exp. Resumes to Hal G. Cross, VP for Bus/Fin, Job # 2329.02, Baptist Bible College/ Seminary, 538 Venard Road, Clarks Summit, PA 18411.

Sr. Consultant to write proposals; presentations; project plan, mgmt. & implement; customer service & business devel. Technical duties: statistical analyses and modeling using SAS, SPSS; develop software applications using Oracle, PL/SQL, C and C++ to solve customer issues & optimize b/z processes for mktg., sales, inventory control. MS or MBA in b/z Admin. + 2 yr. exp. Salary at prevailing wages. Apply to Milan, 1640 Powers Ferry Rd., Bldg. 21, Marietta, GA 30067 with proof of work authz.

Developer wanted by Multi-Nat'l Mktg Communications Co in Manh. Perf coding, programming & appl dvlpmnt; follow & implement tech specs; doc & catalog all software. BS in Comp Sci, Electronics or Engr & 2yrs exp in job offered req. Respond to: AAH/HR Dept, PO Bx 4241, GCS, NY 10163.

Programmer Analyst. 8a-5p. 40 hrs/wk. Analyze, dsgn, dvlp, prgm & implmt bus applics using JCL, CICS, VSAM, DB2, COBOL-II and SCREEN-COBOL. Educational reqmt: Bach or equiv in Electrical or Electronics Engg. Comp Sci/Engg, Mgmt Info Systms, Bus Admin or related field. Exp reqmt: 2 yrs in job offd or as Systms Analyst/Systms Executive or Prgmr. Resume: Avalon International, Inc., 3550 Engg Dr, Ste 260, Norcross, GA 30092.

Securities Clearing firm is seeking a Senior Systems Architect to maintain software for communications within the company and for communication with external users. Must have a Bachelor's degree or equivalent in Computer Science or a related field and a minimum of 5 years of experience in Mainframe Programming OR a Master's degree or equivalent in Computer Science or a related field with a minimum of 3 years of experience in Mainframe Programming. Experience must also include CICS, MQ Series, Internals and OS/390 architecture. Fax resumes to HR Dept. DTCC @ 212-855-5802. Refer to job 8565.

Systems Analyst- CommVault Systems Inc. is in need of a Systems Analyst for its Oceanport, NJ location. Design & implement network & systems architecture for storage mgmt., data recovery, storage area networks, & security design. Must have a Bach. Deg. in Mgmt. Info. Systems, Comp. Science, Eng'g, or related field, 2yrs exp. in the job offered or in a network admin. occup. & exp. w/ TCP/IP, SMS, & UNIX. EOE. Resume to: thoffman@commvault.com

Programmer/Analyst-Analyze, design, program & implement various computer applications, Req. Bachelors in Comp. Sci., Technology, MIS or Engg. (any field) + 1 yr. exp. Contact: International Systems Technologies, Inc., 1812 Front Street, Scotch Plains, NJ 07076.

Software Developer. Develops software for telecomm./business applic's; determines feasibility of design within time/cost; evaluates interfaces between hardware-software/performance requirements; measures design outcome; develops/directs testing procedures, programming/documentation; uses T-SQL, MS SQL Server, MS Visual Studio, MS Visual Basic, COM/DCOM. Req. Bach. in Comp. Sci. rel./equiv. & 2 yrs. exp. Resume to K. Baker, Radiant Telecom, Inc., 1020 N.W. 163rd Drive, Miami, FL 33169.

Manager, 3D Appl. Rsrch Group, wanted for mfgr of computer components. Req. B.S. in E.E. or related scientific discipline plus 8 yrs. tech. devlpmt/mgmt exp. in comp. graphics industry. Reply to K.B., H.R. Dept., ATI Research, Inc. 62 Forest St., Marlboro MA 01752.

Junior Systems Analyst. Assist in designing and installing a computer system for inventory, distribution & accounting management including s/w and h/w integration. Req: Bachelors in Computer Sci. 40hr-wk. Job/ Interview Site: Chatsworth, CA. Send resume to Ganesh Industrial Supply, Inc., 20621 Plummer St., Chatsworth, CA 91311

SYSTEMS ANALYST for distributor to South America-Assist in installation, management, configuration, maintenance, trouble-shooting & management training of local network for both US & Venezuela; Assist in transfer of accounting & management databases between domestic & foreign corps. Min. req: Bach in Computer Information Systems + 2 yrs exp. Resumes: Total Music Dist., P.O. Box 260007, Pembroke Pines, FL 33028.

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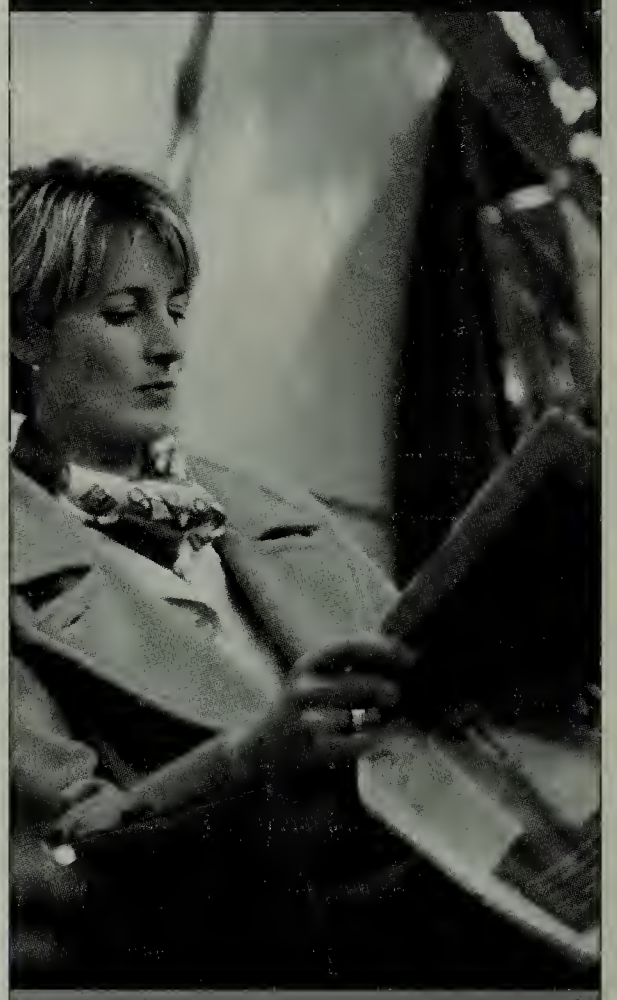

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PROGRAMMER ANALYSTS AND SYSTEMS ANALYSTS (multiple positions) sought by Edison, NJ-based S/ware Consultancy firm. Must have Bach or equiv in Comp Sci or engg & 1 yr s/ware exp. Respond to: HR Dept., AK Systems, Inc, 100 Metroplex Drive, Suite 303, Edison, NJ 08817.

Tech Project Manager wanted by Research Consulting & Info Services Co in MA. Plan & implement tech & network support systs; oversee implementation of new software & tech systs; create doc of tech systs; responsible for Goldmine Software & Database. MA in Bus Admin or Info Mngmnt & 6 mos exp in job offered req. Respond to: VP /Mngmnt Ventures, 20 University Rd, Cambridge, MA 02138.

Jr. Computer Programmer. Assist in Developing S/W including modifications, workflow, analysis & testing on windows NT using ASP, VS, javascript, SQL, C & C++. Req:Bachelors in Computer Science or Computer Engg., 40 Hr/Wk, Interview Site: Patheo Inc.,5455 Garden Grove Blvd. #425, Westminister, CA 92683, Send Resume to: resumes@patheo.com

Internet Marketing Coordinator - Photo finishing & printing service seeks indiv to design & develop the marketing strategies for the Internet platform. Req'd: Bachelor's Degree in Com. Science, 2 yrs of exp in job offered or 2 yrs exp. as a Mrkting Mgr related position with Internet Marketing exp, must have knowl/exp in Photoshop, Flash, Java & Oracle Database. RSVP to Attn: Mr. Pi, Photo Experts, Inc. 57-08 39th Avenue, Woodside, NY 11377

Software Engineer- (Murray Hill, NJ) Develop & implement production application systems according to user needs & schedule/cost limitations. Integrate multiple platform solutions & implement client/server & web development projects to improve workflow.Req'd: Bach. Deg. in Comp.Science, Comp. Mgmt, or related discipline, 5 yrs exp. in the job offered or as a Software Developer or Systems Analyst & exp. with UNIX & ORACLE loader and import/export utilities. Send resume to: The BOC Group, Inc., 575 Mountain Avenue, Murray Hill, NJ 07974. Job Code: SE/DH

Software Engineer. Design web based computer technology and software with the use of JAVA, ORACLE and MS SQL server on Windows and SUN Solaris. Req:Bachelors in Computer Science or Computer Engineering. 40 hr/wk. Job/Interview Site: Los Angeles, CA. Send resume to Reunion.com, 12200 W Olympic Blvd. Suite 270 Los Angeles, CA 90064-1020

Senior Programmer Analyst sought by NYC-based banking corp. to perform internal business reporting requirements and specifications; and to design, code, test, debug, document and implement management and operational reporting projects using Oracle Financial Services Applications, Oracle Financial Analyzer, Oracle Express, Oracle Discoverer, PL/SQL and Oracle Forms and Reports. Should have BS in Comp Science/Engg or equivalent with 3 yrs of exp in duties listed above. Respond to: HR Dept, Sumitomo Mitsui Banking Corporation, 277 Park Avenue, 6th Floor, New York, NY 10172.

Programmer; Works under the supervision of Sr. programmers to convert project specs to create /modify computer programs; develop programs to manipulate data using AWK/C/Basic; develop test procedures/software; increase program operating efficiency; document program development. Req: Bach in Comp Sci rel/equiv and 1 yr exp or 3 years work exp may be substituted for req of Bach & 1 yr exp. Resume: HR, The USA Bouquet Company, 1500 NW 95th Ave, Miami, FL 33172.

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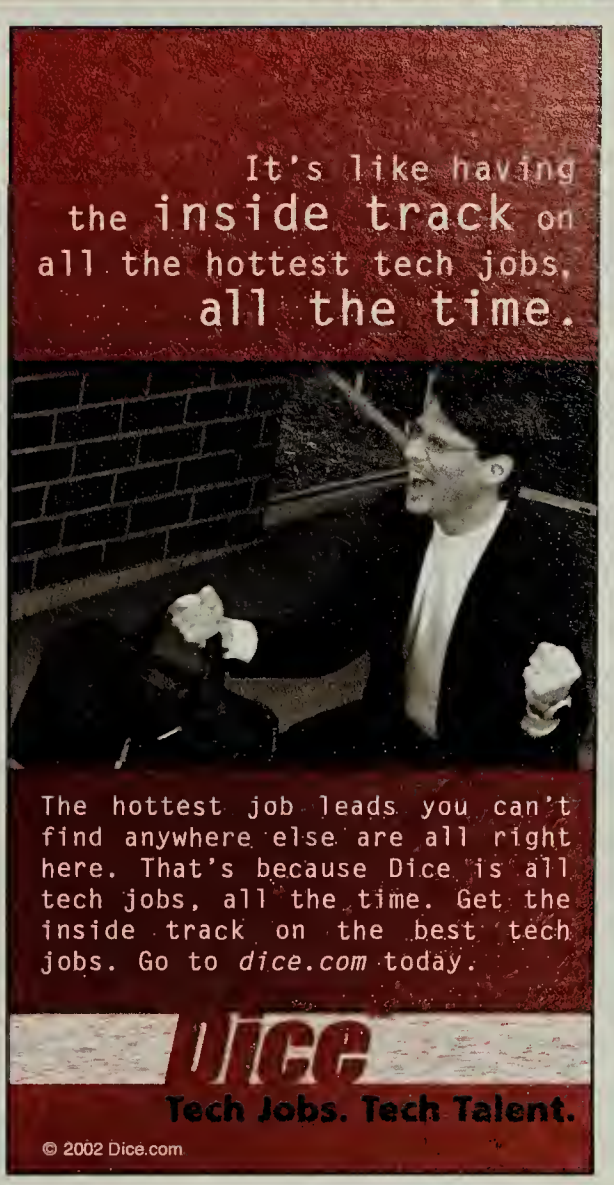
Systems Administrator to maintain on board computer systems such as FIDELIO, Pronto Interactive TV, RED-M Internet wireless systems. Full time position M-F, located in Miami, offers good salary. Applicants with Bachelor's degree in Comp. Engg and 2 years exp. in the job send resumes only to: Alice Brennan, Mgr. H.R. Residen Sea Resorts Ltd. 5200 Blue Lagoon Drive #790. Miami Florida 33126.

SENIOR SOFTWARE ENGINEER to design, develop, analyze, test, implement and maintain system software products for e-business infrastructure using object oriented design and methodologies on UNIX and Windows environment with C++ and Java; design client/server systems with multi-threading, networking, inter-process communications and memory management. Require: M.S. in Computer Science and one year of experience in the job offered or any experience providing skills in described duties. Competitive salary and benefits. 40 hours /week, 9 am to 5 pm, M-F. Apply with resume to: Human Resources Coordinator, Chutney Technologies, Inc., 3490 Piedmont Road, Suite 1100, Atlanta, GA 30305.



Several computer related positions available for large medical products distribution company. Degree, technical skills & experience vary per positions. Send resume to Ann Christante, PSS World Medical, Inc., 4345 Southpoint Blvd., Jacksonville, FL 32246.

SENIOR LOTUS NOTES DEVELOPER (SENIOR ENGINEER)

Develop, implement, create, and test workflow. Track applications in a Lotus Notes/Domino environment. Perform database design and web development using Lotus Script, Java Script, ODBC, OLE. Develop test and debug user interfaces for the applications. Must have a Bachelor's Degree in Engineering, Computer Science or related field. Must have three years of experience as a programmer or analyst in Lotus Notes environment. Salary and benefits commensurate with experience. Send resume to: Joseph W. Pereira, Senior Human Resources Advisor, Norwalk Hospital, Maple Street, Norwalk, CT 06856

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Sr. Software Engineers (2)- Design/develop/qualify/test/support large scale client-server prod. in Windows NT/2000, translate designs to software prod.using Windows NT/2000, Borland Delphi/MS SQL/ Paradox/Word/Excel/Access/XML/COM/DCOM. Bachelor's degree Computer Sc., Engineerg or related field + 2 yrs exp. in position, as Software Developer, or as Software Eng. req'd Must be proficient in Windows NT/2000/Delphi/MS SQL/COM/DCOM. $71,887-$79,118/yr, 40 hrs/wk, OT as need. Ref: VC.

Software Engineers (3)- Develop/qualify/test/support large scale client-server prod. in Windows NT/2000, translate designs to software prod. using Windows NT/2000, Borland Delphi/MS SQL/Paradox/Word/Excel/Access/XML/COM/DCOM. Bachelor's degree Computer Sc., Engineerg or related field req'd. Must be proficient in Windows NT/2000/Delphi/MS SQL/COM/DCOM. $55k-62.5K/yr, 40 hrs/wk, OT as need. Ref: LR

Send resume: D. Root, HR Director, Alogent, 4005 Windward Plaza, Alpharetta, GA 30005.

SAP Systems Analyst: Requires: Bachelor's degree in Econ, Bus. Admin or Info Sys.; 2 yrs' exp. in job offered or in bus. info sys analysis/consulting; & demonstrated expertise with ABAP, SAP & SAP modules FI/CO, SD, & MM & SAPScript. Duties: Develop, implement & maintain complex SAP systems for Pharma sector. Analyze & configure sophisticated bus sys. & applications & interfaces. Design, write, test & debug complex computer applications using ABAP, SAP, SAPScript. Configure bus. applications, modules & reports in SD, MM, & FI/CO. Responsible for creating ABAP interfaces & full life cycle development of projects. Perform system impact analysis for federal & state regulatory compliance. Prepare system specifications. Develop documented customization in SAP environment using ABAP programming language. Analyze, design & modify existing applications in SAP system to improve performance. $65,000 /year. 8 am –5 pm., M-F, 40hrs /wk. EOE. Send 2 resume w/copy of Ad to: Cobb/Cherokee, Job Order #GA7121584, 465 Big Shanty Road, Marietta, GA 30066-3303 or nearest Department of Labor field service office.

SYSTEMS DEVELOPER: Design, develop & implement IT solutions & support to global SAP R/3 systems running in 20+ locations. Deliver solutions in SAP R/3 & related SAP systems. Troubleshoot in SAP systems. BS in Comp Sci, Info Systems or related field plus 2 yrs exp required. Must have experience w/SAP R/3 within system development, ABAP/4 Reporting Tools, SAP Script, User Exit, Interfaces/Integrations using BDC's /LSMW, BAPI's, ALE/IDOC technologies; SAP ITS & related SAP 3rd party tools. Pls forward resume to: nzna-jobs@novozymes.com.

Chief Computer Programmer: Plan, develop, program, test & document computer programs using structured analysis; analyze & write detailed program specifications; design & deploy systems using Sterling's COOL: GEN, Oracle 9iAS, Oracle Designer 6i, & Oracle Developer 6i. Req. BS in CS or related or foreign equiv degree plus 4 yr work exp. Hrs: 8a-5p, M-F. Send resume to Moorecroft Systems 202 Abbey Ct., Alpharetta, GA 30004 Ref ST.

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HCL Technologies America, Inc. and its affiliate companies like HCL Enterprise Solutions and HCL Technologies (Mass.) Inc. have multiple openings at its offices in Sunnyvale, CA; Stamford CT; Plano TX; Florham NJ , Irvine CA, Vienna, VA, Boston, MA, Chicago, IL Detroit, MI as well as project sites throughout the United States for the following positions:

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330 Potrero Avenue
Sunnyvale, CA 94085
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SOFTWARE ENGINEER

Multiple openings for software engineers to design, develop and test computer programs for business applications; analyze software requirements to determine feasibility of design; direct software system testing procedures using expertise in C#, ASP.NET, SOL Server 2000 and COM. Requirements: Bachelor's Degree or equivalent in Computer Science or related field and two years experience as a software engineer or computer programmer, knowledge of C#, ASP.NET, SOL Server 2000 and COM. Salary: $66,000/year. Working Conditions: 8:00 A.M. to 5:00 P.M., 40 hours/week, involves extensive travel and frequent relocation. Apply: Manager, Butler County CareerLink, Pullman Commerce Center, 112 Hollywood Drive, Suite 101, Butler, PA 16001, Job No. WEB274183.

Sr. Consultant - Technology. Duties: Design, develop & implement internet appls. using Java, C & C++. Resp. for all project life cycle processes. Author project documentation incl. require., design, functional & tech. specs., test plans & scripts. Provide work estimates for develop. tasks & review project specs. & schedules. Identify tech. issues, develop solutions & communicate alternatives to client. Requires: M.S. (or foreign equiv.) in Comp. Sci., Eng. or a related field & 3 yrs. exp. in the job offered or 3 yrs. exp. as a Consultant, Assoc. or Software Eng. Concurrent exp. must incl. 3 yrs. exp. designing & implementing internet appls. & 3 yrs. exp. authoring proj. documentation. EOE. 40 hrs./wk. 8:00 a.m.-5:00 p.m Send resume (no calls) to: Tracey Friedman, Dimension Data/Proxicom, 55 Broad St., 5th Fl., New York, NY 10004.

PROGRAMMER ANALYSTS for Arlington Heights, IL office. Design, develop & maintain software applications using Developer 2000, Designer 2000, Visual Basic, Oracle, Cobol, C++, Erwin; Develop and implement client/server applications in Oracle Financials and using Oracle tools related synchronization techniques; Develop relational database systems in Oracle, VB and Windows, Unix environment. Bachelors Degree req'd in Computers, Engineering or related field of study + 2 yrs of related exp. 40 hrs/wk. Must have proof of legal authority to work permanently in the U.S. Send resume to HR Manager, Terasoft International, Inc., 2015 S.Arlington Heights Road, #114, Arlington Heights, IL 60005.

Software engineer to design, develop and test computer programs for business applications; analyze software requirements to determine feasibility of design; direct software system testing procedures using expertise in XML, JSP, Oracle and e*Gate 4.5. Requirements: Bachelor's Degree, educational or functional equivalent, in Computer Science or related field and two years experience as a software engineer or computer programmer, knowledge of XML, JSP, Oracle and e*Gate 4.5. Salary: $66,000/year. Working Conditions: 8:00 A.M. to 5:00 P.M., 40 hours/week, involves extensive travel and frequent relocation. Apply: Director, Pittsburgh/Allegheny Co. CareerLink, Attn: JS Supervisor, 425 Sixth Ave., Suite 2200, Pittsburgh, PA 15219, Job No. WEB274190.

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- DATA WAREHOUSING ARCHITECT
- IT PROJECT MANAGER
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- DATA MODELING

Contact the Corporate Headquarters for positions available in the following areas: Arizona, Colorado, Connecticut, Florida, Georgia, Illinois, Massachusetts, New Jersey, New York, North Carolina, Pennsylvania, Southern California, Texas, Virginia/DC.

For consideration please reference Job Code: RIRCW11 and send your resume to: RCG Information Technology; Attn: National Recruiting, 379 Thornall Street, Edison, NJ 08837; FAX: (732) 744-3583 or email to: recruit@rcgit.com We are an Equal Opportunity Employer. M/F/D/V.

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SYSTEMS ANALYST to analyze, design, develop, test, implement and support web based applications and reports based on business requirements and functional specifications using HTML, PL /SQL, SQL Server, Oracle, Java, JavaScript, JSP, Java Servlets, EJB and WebLogic under Windows NT operating systems. Require: B.S. degree in Computer Science, an Engineering discipline, or a closely related field with two years of experience in the job offered or as a Programmer/Analyst. Extensive travel on assignment to various client sites within the U.S. is required. Competitive salary offered. Send resume to: Stacy Fluech, HR Mgr., Nova Information Systems, One Concourse Pkwy., Ste. 300, Atlanta, GA 30328; Attn: Job KR.

SOFTWARE ENGINEER

Software engineer to design, develop and test computer programs for business applications; analyze software requirements to determine feasibility of design; direct software system testing procedures using expertise in DB2, CICS, PL/1 and SAS. Requirements: Bachelor's Degree or equivalent in Computer Science or related field and two years experience as a software engineer or computer programmer, knowledge of DB2, CICS, PL/1 and SAS. Salary: $66,000/year. Working Conditions: 8:00 A.M. to 5:00 P.M., 40 hours/week, involves extensive travel and frequent relocation. Apply: Manager, Washington County Team PA CareerLink, Millcraft Center, Suite 150LL, 90 West Chestnut Street, Washington, PA 15301-4517, Job No. WEB274172.

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Calif. based IT co. has openings at its Torrance office and unanticipated client sites across the U.S. for Programmer/Analysts, Software Engineers and Business Development Consultants. Send resume with salary history and requirements to RJT Compuquest, 23430 Hawthorne Blvd., #305, Torrance, CA 90505, ATTN: Suzanne

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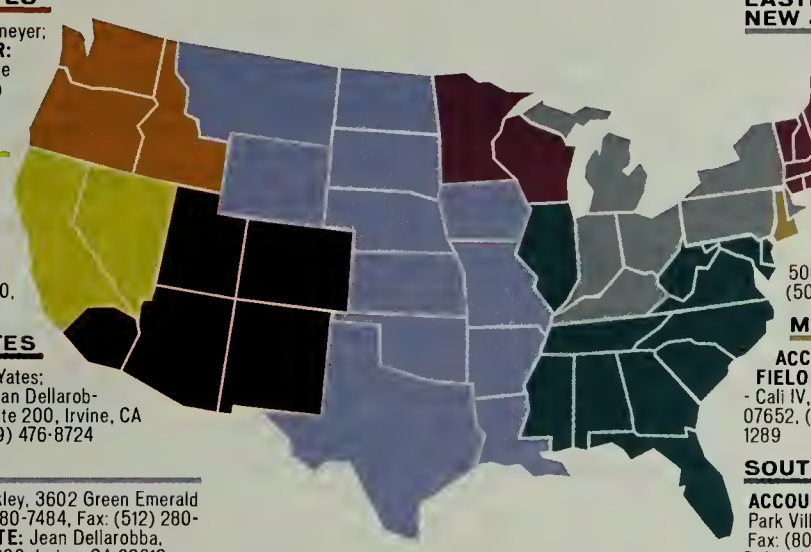

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ADVERTISERS INDEX

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www.avaya.com

Canon 27
www.imagerunner.com

Computer Associates 4
www.ca.com

Dell Corporate 37
www.dell.com

Dell Small Business 59
www.dell.com

Finisar 21
www.finisar.com

Hewlett-Packard 24
www.hp.com

IBM DB2 49
www.ibm.com

IBM i-Series 11
www.ibm.com

IBM Lotus 47
www.ibm.com

IBM p-Series 13
www.ibm.com

IBM Tivoli 45
www.ibm.com

InterSystems Corp. 9
www.intersystems.com

Iomega 35
www.go.iomega.com

Microsoft Agility 2-3
www.microsoft.com

Oracle Corp. 60
www.oracle.com

Quantum's Network Attached Storage Div. 29
www.quantum.com/new4400

SAS 31
www.sas.com

SNW Fall Conference 2002 51
www.snwusa.com/agenda

Stevens Institute of Technology 40*
www.attila.stevens-tech.edu/motsymposium

Storage Networking World Online 20
www.snwonline.com

Veritas 33*
www.veritas.com

Zone Labs 15
www.zonelabs.com

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Vice President/CIO
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CONTACTING CW EDITORS

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CONTRIBUTING WRITERS

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ABERDEEN GROUP INC. 30
ACT TELECONFERENCING INC. 38
ACUCORP INC. 58
ADC TELECOMMUNICATIONS INC. 34
AFFILIATED COMPUTER SERVICES INC. 10
AFLAC INC. 18
AGERE SYSTEMS INC. 1
AGILE SOFTWARE CORP 32
AIR2WEB INC. 8,34
ALLEGIANCE HEALTHCARE 32
ALLMERICA FINANCIAL CORP 12
AMAZON COM INC. 32
AMERICA ONLINE INC. 30
AMERICAN EXPRESS CO. 26
ANONYMIZER INC. 16
ANTELOPE VALLEY HEALTH CARE DISTRICT 28
APPLE COMPUTER INC. 6
ARBORTEXT INC. 26
ARTHUR ANDERSEN LLP 41
ASSOCIATION FOR COMPUTING MACHINERY 50
ASTUTE INC. 28
ATESA 32
AVNET COMPUTER MARKETING 30
AZTECH PROFESSIONAL SERVICES INC. 7
BAAN CO. 58
BACOU USA INC. 26
BAKER & HOSTETLER LLP 1
BARTON MALOW CO. 14
BCE 36
BEA SYSTEMS INC. 6
BECKMAN & HIRSCH PLC 30
BELL CANADA 34,36
BENEFIT SYSTEMS INC. 46
BIOCONX INC. 28
BLACK & VEATCH CORP 26
BMC SOFTWARE INC. 8,16,32
BOSTONSPIN. 7
BRITISH TELECOM CONFERENCING 36
BURLINGTON COAT FACTORY WAREHOUSE CORP. 42
BURLINGTON NORTHERN SANTA FE RAILWAY CORP. 34
CAMPUS PIPELINE INC. 46
CANADIAN IMPERIAL BANK OF COMMERCE 10
CAP VENTURES INC. 26
CARILION HEALTH SYSTEM 46
CARNEGIE MELLON UNIVERSITY 21
CARRAMERICA REALTY CORP. 22
CELANESE AG 50
CENTER FOR STRATEGIC & INTERNATIONAL STUDIES 1
CERT COORDINATION CENTER 21
CIA 34
CISCO SYSTEMS INC. 1,6,7,8,14
CLIENTSOFT INC. 28
COMPUTER ASSOCIATES INTERNATIONAL INC. 16,32
CONECTIVA SA 19
CORIO INC. 32
CRITICAL INFRASTRUCTURE PROTECTION BOARD 1
CURRENT ANALYSIS INC. 7
CYCLONE COMMERCE INC. 32
DAIMLERCHRYSLER AG. 36
DEFENSE INTELLIGENCE AGENCY 38
DELL COMPUTER CORP. 8,19,42
DELPHI GROUP 34
DIALAMERICA MARKETING INC 28
DICE INC. 7
DIXON TICONDEROGA CO. 45
DO IT BEST CORP 32
DOLLAR TREE STORES INC. 1
DUKE ENERGY CORP 1
DYNCORP 14
ECLIPSE.ORG 8
ELECTRONIC DATA SYSTEMS CORP. 10
ELLIOTT GRAND HYATT HOTEL 22,34
EMC CORP. 14
ENGENIA SOFTWARE INC. 46
ENRON CORP. 41
ENTERCEPT SECURITY TECHNOLOGIES 22,32
EVERDREAM CORP. 22
EXCELON CORP. 32
FBI 16
FEDERAL RESERVE BANK OF NEW YORK 26
FIRST CITIZENS BANK 22,32
FISHER COMMUNICATIONS 34
FOOTE PARTNERS LLC 38
FORD MOTOR CO. 26
FORMATION SYSTEMS INC. 34
FORTINET INC. 32
FOUNDRY NETWORKS INC. 32
FROST & SULLIVAN 36
F-SECURE CORP. 21
FUJITSU LTD. 58
GALACTIC LTD. 26
GARTNER INC. 1,19,30,32,34,38
GAYLORD ENTERTAINMENT CENTER 14
GELCD INFORMATION NETWORK 26
GENERAL MOTORS CORP. 10
GMAC FINANCIAL SERVICES 34
HARRIS CORP. 32
HEROIX CORP. 8
HEWLETT-PACKARD CO. 6,10,12,19,42
HILTON HOTELS CORP. 1
HOECHST AG 50
IBM 8,7,8,10,14,16,19,22,28,30
IDC 6,19
IDENTIFY SOFTWARE LTD 8
IEEE COMPUTER SOCIETY 50
ILLUMINATA INC. 16,19
INFORMATION TECHNOLOGY ASSOCIATION OF AMERICA 7
IN-Q-TEL INC. 34
INSEAD 48
INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS INC. 1
INTEL CORP. 6,19,25,42
INTERNATIONAL COMMITTEE ON INFORMATION TECHNOLOGY STANDARDS 25
INTERNATIONAL DB2 USERS GROUP 7
INTERNET CORPORATION FOR ASSIGNED NAMES AND NUMBERS 6
INTERNET SECURITY SYSTEMS INC. 38
INTERNET2 50
INTERSIL CORP. 1
INTERSYSTEMS CORP. 14
IVALUE 14
IXIASOFT INC. 36
J.D. EDWARDS & CO. 8
KNOWLEDGENET 50
KPMG CONSULTING INC. 12
KRISPY KREME DOUGHNUT CORP. 26
L'OREAL SA 28
LANDSTAR SYSTEM INC. 26
LEVI STRAUSS & CO. 28
LINENS 'N THINGS INC. 26
MARIMBA INC. 8
MAZU NETWORKS INC. 30
MCDONALD'S CORP. 28
MCKENNA & CUNEO LLP 28
MCKESSON CORP. 32
MENASHA ADVANTAGE 42
MENASHA CORP 42
MERCURY INTERACTIVE CORP. 8
METASTORM INC. 28
METRATECH CORP. 36
MICROSOFT CORP. 1,6,8,25,28,34,42,44
MOTOROLA INC. 8
MRS. SMITH'S BAKERIES LLC 34
MTV NETWORKS ONLINE TECHNOLOGY 30
MTV NETWORKS 30
MULTICARE HEALTH SYSTEM 16
NANOBUSINESS ALLIANCE 12
NANOMIX INC. 12
NATIONAL CENTER ON THE EDUCATIONAL QUALITY OF THE WORKFORCE 41
NATIONAL LIFE INSURANCE CO. 12
NATIONAL RETAIL FEDERATION 14,26
NATIONAL SCIENCE FOUNDATION 50
NCR CORP. 42
NEOCORE INC. 36
NETWORK ASSOCIATES INC. 1,14
NEW YORK MERCANTILE EXCHANGE INC. 30
NEWSEDGE CORP. 34
NORTH AMERICAN VAN LINES INC. 36
NORTHAMERICAN LOGISTICS 36
NOVELL INC. 28
NTRU CRYPTOSYSTEMS INC. 1
NTT DOCOMO 32
OKENA INC. 32
OPENHARBOR INC. 8
ORACLE CORP. 6,7,25,36
ORBITZ LLC 42
OSHKOSH B'GOSH INC. 48
OVERLAKE HOSPITAL MEDICAL CENTER 34
PALM INC. 8
PARSONS CORP. 42,44
PAUL'D PRODUCTS CO. 16
PENN MUTUAL LIFE INSURANCE CO. 28
PEOPLESOFT INC. 58
PETRO-CANADA 6
PIRUS NETWORKS INC. 8
PLUVITA CORP. 26
PRAGMATIC SOLUTIONS INC. 7
PROCTER & GAMBLE CO. 10
PROXIM CORP. 1
PUMA SYSTEMS INC. 8
RATIONAL SOFTWARE CORP. 8
REALNETWORKS INC. 34
RED HAT INC. 19,42
RELATIVITY TECHNOLOGIES INC. 46
RESEARCH IN MOTION LTD. 8
RLX TECHNOLOGIES INC. 19
ROBERT FRANCES GROUP INC. 6
RSA SECURITY INC. 38
RYDER SYSTEM INC. 30
SAP AG 10,42,58
SHAW PITTMAN LLP 30
SIEBEL SYSTEMS INC. 58
SIEMENS AG 28
SOFTWARE AG 22,36
SONY CORP. 23
SOZA & CO. 26
ST. BERNARD SOFTWARE INC. 16
STORAGE NETWORKING INDUSTRY ASSOCIATION 25
STRATIFY INC. 34
STRATUM8 NETWORKS INC. 8
SUN MICROSYSTEMS INC. 6,8,42
SUSE LINUX AG 19
SYMBOL TECHNOLOGIES INC. 1
SYNCHRONOLOGIC INC. 8
T10 TECHNICAL COMMITTEE 25
TECHNOLOGY MANAGERS FORUM 26
TERABEAM CORP. 22,34
THE AMERICAN NATIONAL RED CROSS 34
THE BOEING CO. 26
THE CDCA-COLA CO. 34
THE SCO GROUP 19
THE YANKEE GROUP 8,10,28,32
TIVOLI SOFTWARE 16,32
TRANSMETA CORP. 19
TREND MICRO INC. 14
TRIPWIRE INC. 1
TRUSECURE CORP. 1,21
TURBOLINUX INC. 19
U.S. DEFENSE INFORMATION SYSTEMS AGENCY 14
U.S. DEPARTMENT OF COMMERCE 6
U.S. DEPARTMENT OF EDUCATION 34
U.S. DEPARTMENT OF THE TREASURY 12
U.S. ENVIRONMENTAL PROTECTION AGENCY 14
U.S. GENERAL ACCOUNTING OFFICE 7
ULTRA-SCAN CORP. 32
UNISYS CORP. 6,42
UNITED PARCEL SERVICE INC. 34
UNITEDLINUX 19
UNIVERSITY OF MIAMI 26
UNIVERSITY OF SOUTHERN CALIFORNIA 32
US AIRWAYS GROUP INC. 26
VALASSIS COMMUNICATIONS INC. 14
VIGILAR INC. 8
VIRGINIA POLYTECHNIC INSTITUTE AND STATE UNIVERSITY 36
WAVESET TECHNOLOGIES INC. 34
WILSONS THE LEATHER EXPERTS INC. 26
WINCOR NIXDORF INC. 42
WIRELESS ETHERNET COMPATIBILITY ALLIANCE 1
WORLDCOM INC. 8,41
WYETH PHARMACEUTICALS 26
XEVO CORP. 19
YAHOO INC. 30,34
ZAPTHINK LLC 36

Continued from page 1

Rich-Client Apps

environment for building user interfaces in a consistent way.

"We're not going to go completely back to Windows Forms. We're going to evaluate where it makes sense," said Lisa Woerner, another application analyst at Duke Energy.

It's not just the Microsoft environment that's seeing a resurgence of rich-client development. Mark Driver, an analyst at Stamford, Conn.-based Gartner Inc., said he has seen increased use of client-side Java, a trend he began noticing about 18 months ago as users encountered the limits of HTML for rich GUIs.

Daryl Plummer, also a Gartner analyst, said developers should get as far as they can with HTML, scripting languages and their design skills in developing thin clients and move to richer clients when they see a clear need.

"Microsoft and others led all of us down the path of Web apps, and we went happily," he said. "But Microsoft had to make sure that they didn't lose their value proposition, which was the desktop. So they had to find a way to retain the Web dominance and bring back the rich client, which kept their PC desktop domination alive."

Taking Notice

Among the .Net framework features that caught the attention of developers attending last week's VSLive and Gartner application development conferences here were "no-touch" deployment and the new platform's ability to run old and new application components side by side so that old applications won't break when new applications or application components are installed.

> Microsoft and others led all of us down the path of Web apps, and we went happily.
>
> **DARYL PLUMMER, ANALYST, GARTNER INC.**

Although those features shipped with the .Net framework in February, several developers said they didn't take note of them, since Microsoft's marketing efforts focused on Web services and applications.

Last week, however, Brian Siler, a lead analyst in executive information systems in Memphis for Hilton Hotels Corp., said he sensed that Microsoft was trying to push its rich-client story. But even though Siler said that the .Net framework could help his group develop "cool things" such as calendar pop-up windows, he added that he knows he also has to consider the "practical problem" of distributing the roughly 20MB .Net framework to clients, some of which use dial-up connections. "It's not bad if you're on a network," he said.

The .Net framework is currently shipping only with the first Windows XP Service Pack, which was released just two weeks ago. Most corporate users aren't running that operating system.

David Chamberlain, a senior developer at Baker & Hostetler LLP, a law firm in Cleveland, said his company has about 1,400 users, and he believes the download could be difficult. But he said he's interested in exploring the possibilities the .Net framework brings, "if the deployment works as well as I've seen in the demos," since Windows client/server application deployment has often taken six months to a year.

But some users remain wary. Andy Paisley, director of application development at Dollar Tree Stores Inc. in Chesapeake, Va., said he doesn't want to use Microsoft tools for desktop application development because they're proprietary and he prefers to have more than one vendor competing for his business. Paisley also expressed skepticism that the framework can do all that Microsoft says it will to help with client-side application deployment. ◗

PROBLEM SOLVED

How Microsoft addresses problems with rich-client apps:

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Continued from page 1

Cyberdefense

"What happened here?" asked Wyatt Starnes, CEO of Tripwire Inc., a Portland, Ore.-based global IT security company. "We thought we were going to get something concrete. They probably underestimated the politics."

For example, although the strategy calls on corporate CEOs to establish enterprise security councils to integrate cybersecurity, physical security and privacy into their daily operations, compliance remains voluntary.

Russ Cooper, a security consultant at TruSecure Corp. in Herndon, Va., said he's dissatisfied with the strategy in its current form. Specifically, Cooper said the administration has removed language that would have offered a definition of *liability* and an assignment of responsibility for Internet security. "It's time the government mandates some action be taken," said Cooper. "I'd like to see ISPs be told that it is illegal to carry identified Internet attack traffic. But I don't see anything similar or at that level in what they're proposing."

James Lewis, director of the Council on Technology and Public Policy at the Center for Strategic & International Studies in Washington, agreed that having cybersecurity dependent on voluntary compliance can't bring real change in the long run. "The report has many good ideas, but cybersecurity is too tough a problem for a solely voluntary approach to fix," he said. "Companies will only change their behavior when there are both market forces and legislation that cover security failures."

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Despite the disappointment voiced by some, others said the strategy is a key development that demonstrates solid government leadership.

A Good Place to Start

"You have to look at this as a good starting point," said Scott Crenshaw, a vice president at NTRU Cryptosystems Inc., a security firm in Burlington, Mass. "For example, the section on assessment of current gaps and weaknesses in the private sector is particularly strong. If this document raises awareness of those issues, it will have served us well."

Scott Charney, chief security strategist at Microsoft Corp., also applauded the strategy as a critical first step. "It's really important to get the vision piece right. People need time to sit down with the document to debate the pros and cons," he said, referring to the two-month review period before the final version is sent to the president for approval. All reasonable recommendations will have an impact on the shape and direction of the strategy, Charney said.

That may have been part of the plan all along, said a business executive who requested anonymity. It could be that releasing the strategy in draft form was a calculated move by Richard Clarke, chairman of the president's Critical Infrastructure Protection Board, to gauge the reaction of the private sector and determine if there is enough political support to put teeth into the recommendations, the executive said.

Clarke is very skilled at dealing with both the government and private sector, said Gene Hodges, CEO of Network Associates Inc. in Santa Clara, Calif. "Richard [Clarke] is walking a fine line between patting people on the back and kicking them in the butt," he said. ◗

Recommendations

According to the plan, large corporations should:

FORM enterprisewide corporate **security councils.**

PERFORM regular independent IT security **audits, remediation programs and reviews** of "best practices" implementation.

FORM board committees on IT security and **ensure that the recommendations** of the chief information security official in the corporation **are regularly reviewed** by the CEO.

ENSURE that corporate IT continuity plans are **regularly reviewed and exercised,** and consider site and staff alternatives. Consideration should be given to diversity in IT service providers as a way of mitigating risks.

TAKE PART IN public/private partnership programs to **establish an awards program** for those in the industry who are making significant contributions to cybersecurity.

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FRANK HAYES ▪ FRANKLY SPEAKING

Paradigm Lost?

IS COBOL DEAD? Not if you believe the readers who wrote to object after I suggested in a recent column that "some IT practices and job titles will go the way of punched cards, Cobol and green screens" [QuickLink 32513]. One reader told me, "Cobol is alive and healthy. Oh, we use Web front ends, all of our data is on Oracle and our development staff uses a combination of desktop and server tools in their work. But the industrial-strength grunt work is Cobol on Unix servers. We haven't found anything that can handle batch data in a more effective manner."

"I suggest you check your facts," wrote another reader. "Despite the barrels of ink claiming otherwise, the business world still runs on Cobol." Still another said, "There continues to be this perception in the media that Cobol is dead. It's very much alive and very much being evolved. Take note of the vendors (Fujitsu and Acucorp, for example) who have now ported this language to the Linux operating system. I don't think it's going away anytime soon."

OK, let's be clear on this: Cobol isn't dead. It's not at death's door. It's not even sick. It's still an IT workhorse.

But let's be clear on this, too: As recently as a decade ago, Cobol was the king of large-scale development. Now it's not. And Cobol's throne wasn't usurped by PL/1 or any other competing language. Cobol lost its place to SAP and PeopleSoft and Siebel and Baan and other packaged enterprise applications.

IT shops stopped building those big projects and started buying. Our paradigm shifted, and Cobol lost its place at the core of corporate IT.

Dead? No. Demoted from king to hard-working commoner? Yes.

Now, here's a more interesting question: Could King Cobol ever come back?

Answer: Maybe. Remember, just because a paradigm shifts doesn't mean the original paradigm's lost.

IT shifted to packaged apps because they were less expensive (we hoped) and more standardized than the aging custom Cobol code they replaced. After all, accounting is accounting. Inventory is inventory. Billing is billing. Why reinvent these routine business wheels over and over?

Why indeed? There *was* a reason companies built those custom systems in the first place. They wanted to gain a competitive advantage by fine-tuning their business processes in ways their competition couldn't easily match.

The classic example is MCI's original "Friends & Family" program from just a decade ago. It was essentially a specialized billing system for long-distance calls. AT&T's oh-so-ordinary billing system couldn't track "calling circles" the way MCI's custom system could. So MCI got its foothold in long distance by customizing a routine accounting process.

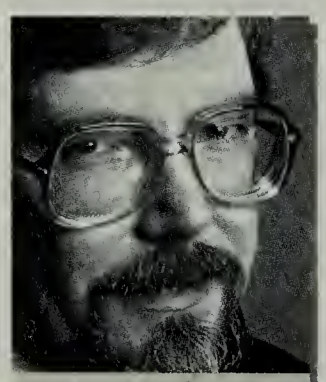
You can't get that kind of advantage with an enterprise package. Any competitor can buy the same software. Whatever you do to specially configure it, your competition can do the same.

If you want any chance at a unique business advantage, you'll have to build it yourself. And that means build-it-yourself enterprise applications just might make a comeback.

Yes, that would be another paradigm shift. CEOs and deep-thinking business gurus would have to decide that there's a limit to the advantages of cost-cutting and that the new way to get competitive advantage from IT is pursuing unique business processes that only custom enterprise apps can deliver.

That won't come this year — not in this economy. But watch for it. Paradigms keep shifting. And with modern design tools and development techniques, and without the albatross of decades-old legacy code that's a nightmare to maintain, Cobol wouldn't be a bad pick as the language of choice for the next wave of big custom development projects. After all, it's mature. It's familiar. It can do the job.

And who knows? Commoner Cobol just might have a shot at becoming the king of corporate IT all over again. ◗



FRANK HAYES, *Computerworld*'s senior news columnist, has covered IT for more than 20 years. Contact him at frank_hayes@computerworld.com.

Hey, Get a Room!

Furious boss tells IT pilot fish to find out what's wrong with office admin's computer. Office admin schedules all conference rooms, but she isn't receiving boss's e-mailed requests, so his meetings don't get a room. Fish spots the problem when he's forwarded copies of boss's messages. "Turns out he doesn't know how to use the address book, so he's hand-typing her e-mail address every time," says fish. "And misspelling it."

SHARK TANK

Take Five

Reports at this manufacturing plant are printed each night on an old ribbon printer. But why are you requesting five-part forms? pilot fish at headquarters asks user. You probably can't even print through that many sheets of paper. "Well, the ribbon broke a while back," says user. "And it really isn't a bother to peel off and discard the top copy."

Priorities

There's a malfunction at this highly computerized lumber mill, damaging both the automation controls and the system that tracks downtime. "When I started to repair the automation system so the machine would restart, I was reprimanded," says IT pilot fish. "Management preferred to have me fix the downtime tracking system first." Result: Mill now has highly accurate records of the worst downtime in the company.

Oh, THAT!

"If I have e-mail, no one's told me about it," automobile dealership sales manager grumbles to his boss. You spent hours learning it yesterday, pilot fish boss reminds him. "That was e-mail?" says sales manager. "How am I supposed to remember all that? What does that have to do with selling cars, anyway? Nobody uses that."

Too Sneaky

"My machine just doesn't look right," user tells IT pilot fish. No wonder, says fish – there's no driver for your video card. Why did you remove the program called "Diamond Stealth III"? User replies, "I didn't like the idea of something called 'Stealth' on my PC."

Knucklehead!

Programmer pilot fish has just finished automating a key monthly financial report – now it's produced in hours, not weeks. Next, his junior-VP boss asks him to change the job titles in the report from senior and junior VP to executive VP and VP. "What kind of knucklehead requested such a meaningless change when so many important processes need to be revised?" grumps fish. I did, replies boss. Says fish, "That was the last time I was called to discuss proposed changes in person."

FEED THE SHARK! Send your true tale of IT life to **sharky@computerworld.com**. You snag a snazzy Shark shirt if we use it. And check out the daily feed, browse the Sharkives and sign up for Shark Tank home delivery at **computerworld.com/sharky**.

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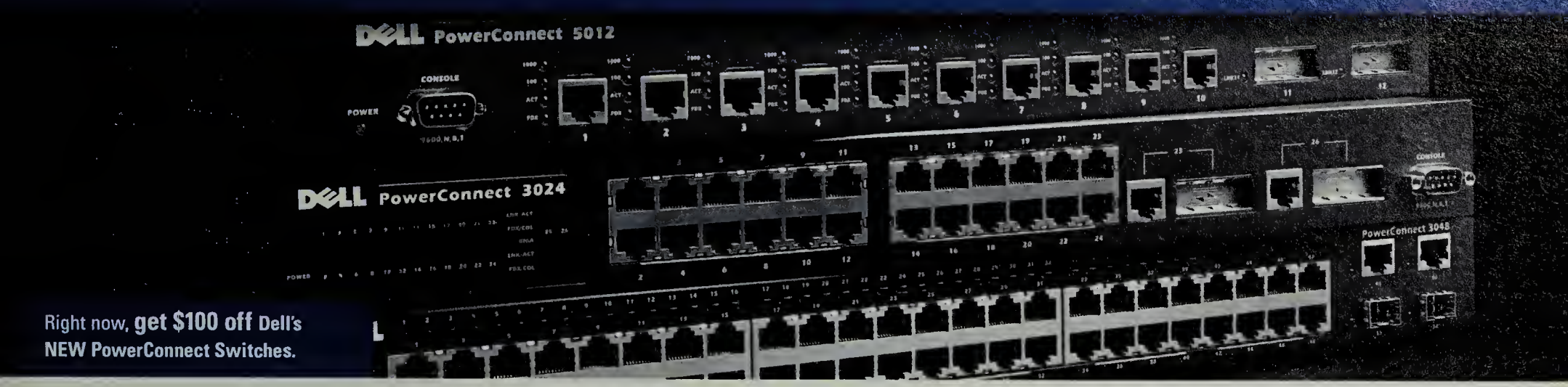

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